

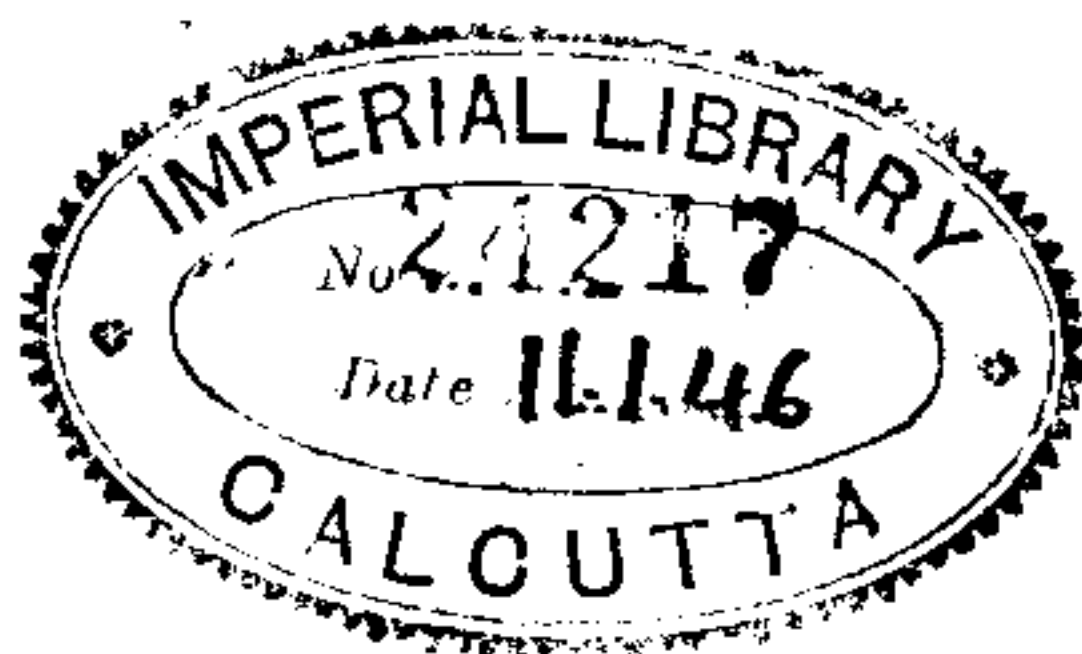
THE UNIVERSITY & THE MODERN WORLD

*An Essay in the Social Philosophy
of University Education*

by

ARNOLD S. NASH, *M.Sc. (Chem.), M.A., M.Sc. (Econ.)*

With a Foreword by
REINHOLD NIEBUHR



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In preparation

THE RECONSTRUCTION OF THE UNIVERSITY

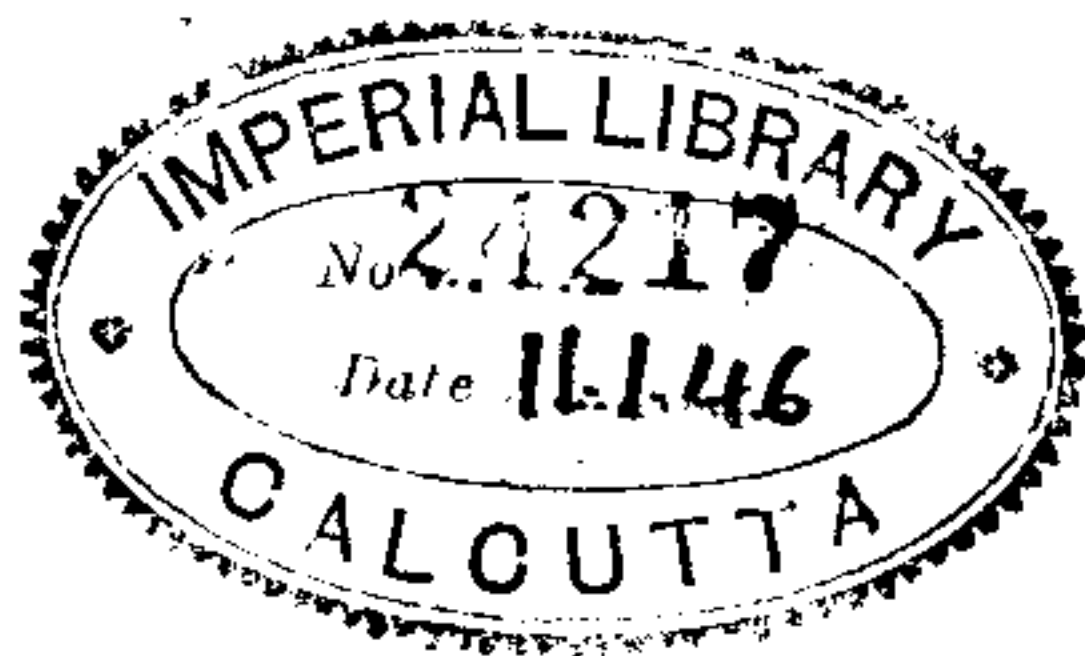
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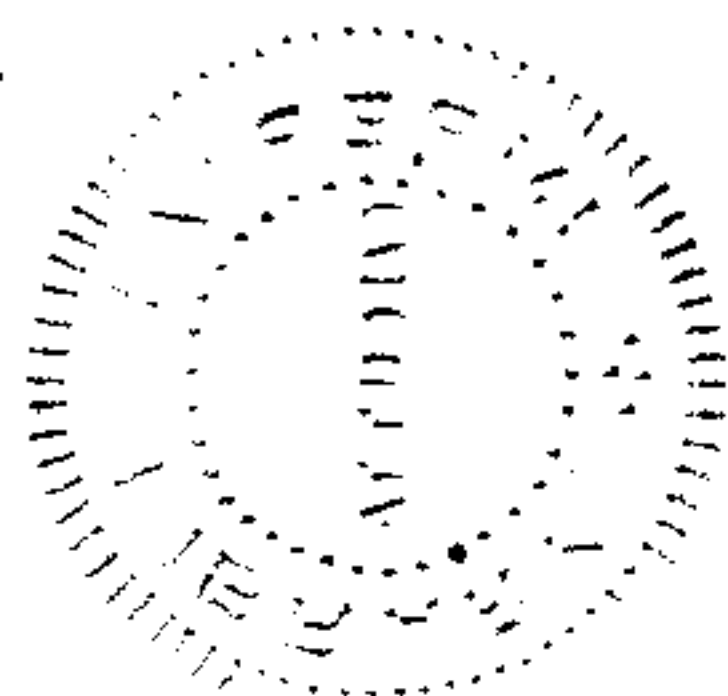
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IN MEMORIAM

ARTHUR JOHN WENSLEY

2nd Lieutenant, The Royal Warwickshire Regiment,
M.Com. (Birmingham), Lecturer in Economics, Birkbeck
College, in the University of London and Chairman of
the Industrial Committee, Student Christian Movement
of Great Britain and Ireland, who was killed in action
south of Tournai, May 20 or 21, 1940, and who would
have understood and sympathized, even where he might
have disagreed, with the argument of this book.

Take away paradox from a thinker and you have the professor.

SOREN KIERKEGAARD

No one writes with impunity in a democracy.

JULIEN BENDA

In a revolutionary world it is not safe to assume too much.

WILLIAM PATON

Seek simplicity and distrust it.

A. N. WHITEHEAD

All living ideas have jagged edges.

J. E. TURNER

A critique of religion is the beginning of all criticism.

KARL MARX

Religious truth is not only a portion but a condition of general knowledge.

JOHN HENRY NEWMAN

Good education is always ahead of public opinion and always behind the needs of the times.

L. A. MACKAY

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FOREWORD

MR. NASH has opened a most interesting discussion in this book. It is his thesis that the modern university has built its curriculum and elaborated its educational procedures upon the basis of an inadequate philosophy. It has assumed that the scientific method and spirit are an adequate guide in the pursuit of knowledge. The difficulty with this assumption is that science as such can have no sense of the meaning of life or of history. It must therefore either seek to develop an "impartiality" and "objectivity" which remains neutral to all "values" and every sense of meaning by which men integrate their individual and collective life; or it must covertly insinuate some faith into a supposedly presuppositionless culture. In the former case a "liberal" culture lives on, and sometimes falls into, the abyss of nihilism; in the latter case it makes faith in "nature" or "reason" or "democracy" or "capitalism" the unexamined basis of its structure of meaning.

Mr. Nash offers very significant historical evidence of the confusions which inhere in the culture of "liberalism" and which have clearly expressed themselves in the futilities of modern education. He analyses both communism and fascism as modern creeds which have sought to fill the vacuum of a "presuppositionless" culture by dogmas which are maintained by political power and which exhaust the meaning of life in a political programme. Without equating communism and fascism (for Mr. Nash recognizes the greater ethical content of the former) he rightly observes their similarity from the standpoint of educational theory and practice. They both enforce conformity to given religio-political dogmas.

Thus the modern world, which began by defying the authority of a Church which sought to bring all culture and education under the presuppositions of a particular version of the Christian faith, ends in a confusion and a cultural chaos which invites new dogmatic creeds of a lower level to bring discipline into life and education.

After this critical analysis Mr. Nash seeks to supply a constructive answer to the problem of faith, freedom and education. He rejects both a conception of freedom which fails to recognize that

all human activities must be based on a definite faith; and a conception of faith which denies freedom and leads to obscurantism. The problem which Mr. Nash faces is a very large one and he modestly refrains from seeking a definitive answer for it. But his analysis is a real contribution. It is characterized by solid learning, diligent scholarship and a wise comprehension of all the facets of the issue.

REINHOLD NIEBUHR.

PREFACE

"A preface should help potential readers to decide whether a book is worth the time it will take them to read it."

LIONEL CURTIS.

THIS book is an essay in criticism, using that term in the third meaning as defined by Webster: "The art of judging or evaluating with knowledge and propriety the beauties and faults of works of art or literature;—extended to similar consideration of moral values, of the soundness of scientific hypotheses and procedures, etc." The object of our criticism in the book is contemporary culture as its crisis is revealed in the fate of the university in the Western world.

All criticism is criticism from a definite perspective; it must begin somewhere. The starting point for this book is the contention that the university, like the world of which it is a part, has reached a crisis even more profound than that evoked by the shattering effects of the Renaissance and the Reformation. The question is not one of considering, for example, whether the scientific tradition of the University of Chicago or the literary tradition of the University of Oxford is to be accepted as the basis of university education. Nor is it whether the university of the Western world shall give up its traditional mode of government which, going back to the University of Paris, based itself on control by teachers and, instead, revert to the earlier tradition of the University of Bologna where the students held the reins of authority. The problem goes much deeper, for what is at stake is the adequacy of the common premises of any tradition now current in the liberal democratic world on the nature and function of the university in society.

The whole of scholarship has reached a turning point, for the individualistic and rationalistic assumptions which have served men of knowledge so well since the dawn of the modern era must now be replaced by those more capable of ordering experience in the new world being born. The neat and tidy text-book division whereby the study of man's sojourn on the earth was divided into pre-history, ancient history, medieval history and modern history is no longer tenable for the simple reason that the period dealt with under the title, "modern history," has come to an end. In economic life it began with the transformation of feudalism into

"free" merchant capitalism; it is ending with the transition from finance capitalism to some type of economic collectivism. In political life, it began with the collapse of the political unity of Christendom and produced the modern nation-state; its end will be marked by either the voluntary coalescence or the forcible absorption of the system of sovereign states into larger interdependent political entities. In intellectual life the modern era started with the emergence of the experimental method in science and the critical view of history as patterns of correct thinking and the consequent collapse of scholastic philosophy with its three-fold division into natural, mental and moral philosophy and their attendant *trivium*: grammar, rhetoric and logic, and *quadrivium*: arithmetic, geometry, music and astronomy; it is ending with the increasing recognition that the *speculum mentis* of the world now disappearing before our eyes is not unlike those seventeenth-century maps which adorn the walls of country houses—they have decorative value but for practical purposes serious revision is needed. The modern mind, to change the metaphor, fashioned its model of thinking on the natural sciences and we now have to reckon with the fact that this model in its classical form is no better fitted to explain (let alone change) the contemporary world than the scholastic scheme was adequate for the intellectual demands of a world built on expanding capitalism.

An interesting indication of the parallel between the intellectual crisis of the sixteenth century and that of our own day is that both produced a faithful remnant of academic scholars who failed to recognize the inadequacy of the thought-forms and methods of thinking which they had inherited from their forefathers. The scholastic metaphysicians played this role at the close of the Middle Ages. Their intellectual counterparts, as the modern era comes to an end, are the "logical positivists." It has not yet dawned on these intellectual descendants of Galileo's opponents that A. N. Whitehead's striking words, "the stable foundations of physics have broken up . . . and the old foundations of thought are becoming unintelligible,"¹ are equally applicable to the situation, if for physics we substitute psychology, or biology, or economics, or sociology.

I do not wish for one moment to give the impression, either in what I have just said or elsewhere in the book, that I am at all in sympathy with those who, in these days of irrational movements

¹ *Science and the Modern World* (Cambridge, 1926), p. 21.

in politics, religion, art and education, take any opportunity which comes their way to disparage science and the use of the human intellect. On the contrary, I would urge that just as the early scientists endorsed the scholastic trust in reason but altered the presuppositions in terms of which reason could be used, so those who would build the new *Weltanschauung* ignore at their peril the experimental method and the knowledge revealed thereby. "Scientific" knowledge of man and the universe may not provide an adequate foundation for the coming intellectual reconstruction but that there must be a place for it in the superstructure cannot be denied.

To those whose suspicions that this book is based on a disparagement of "reason" are still not removed by the above caveat I would add two further considerations. In the first place I can only urge that I am simply seeking, among other things, to ascertain the role of reason in human affairs; it is not my fault if such an investigation indicates that the modern view of human reason as "disinterested" and "impartial" is in many profound respects an irrational superstition. Surely it is more "rational" and "scientific" to seek to discover the limits of reason and the range of validity of scientific method than to defend uncritically, as do so many self-styled rationalists, the most exaggerated claims for "reason" or "science." In the second place, any such suspected obscurantism on my part in my attitude toward science is not I hope, and indeed believe, the result of a complete lack of knowledge as to the aims and achievements of scientific method. Since 1925, when as an undergraduate I entered the School of Chemistry in the University of Liverpool, it has been the main preoccupation of my waking—and sometimes of my sleeping—hours to ascertain the part played by the scientific movement in the creation of the modern world and the value of scientific methods in the attempted elucidation of problems both within and without the field of the natural sciences.

It may help the reader to understand my position and it certainly will enable me to acknowledge many outstanding debts if I attempt to express here my gratitude to the teachers who, from the perspective of their particular concern with the problem, have generously given to me of their time and attention. To E. C. C. Baly (now Emeritus Professor of Inorganic Chemistry in the University of Liverpool) I owe much for making it possible for me, when as one of his research students I was engaged in a piece of

empirical research in photochemistry, to pursue systematically my interest in the theoretical foundations of the natural sciences under the ever-available and creative guidance of J. E. Turner (Reader in Philosophy). As I entered the study of philosophy proper, I learnt from Alan Dorward (Professor of Philosophy in the University of Liverpool) and L. A. Reid (now Professor of Philosophy in the University of Durham) the valuable lesson that, although the fundamental problems of philosophy, like those of life itself, can never be solved with the neat and tidy completion of those in the field of photochemistry, the attempt is nevertheless well worth making. This was a lesson well reinforced by my teacher in theology, H. D. A. Major, Principal of Ripon Hall, Oxford. Thanks to Dr. B. M. Laing of the School of Philosophy in the University of Sheffield, I shall never forget that no statement is ever quite what it seems to be. To my teachers in the London School of Economics I owe an intellectual debt which those who know that eminent institution will find difficult to recognize, if they read this book, since in it I am defending a view of the social sciences which would only just find a welcome within the walls of that most liberal school of learning. From Morris Ginsberg (Professor of Sociology) I learnt that not even the clearest thinking can atone for failure to begin with the facts, while from Professor Karl Mannheim (formerly Professor of Sociology in the University of Frankfurt and now lecturer in the School) I learnt that the facts are never what they seem to be.

The wide scope of the book renders it impossible for me to acknowledge completely the many sources to which I am indebted for ideas and information. Most of the material was collected with no anticipation of being used for the present purpose. However, among the many friends to whom I must express here my profound gratitude for the insight they have given to me through their writings—and even more so in conversation—on the questions with which this book is concerned, I must limit myself to mentioning Reinhold Niebuhr, Adolf Löwe, V. A. Demant, Paul Tillich, J. H. Oldham, P. I. Painter, and W. A. Visser 't Hooft. To my wife—and this is no mere formality—I owe a debt which I can never repay.

I would also remember with keen appreciation the friendly hospitality which the ideas here expressed—like the physical frame which uttered them—received from the teachers and students of those American and Canadian universities and colleges

in which it has been my good fortune to lecture over the last four years. It is for this reason—even if there were not many more—that I hope that this book will be a small contribution to Anglo-American friendship, for I am convinced that, to borrow the words of the most creative figure engaged professionally in British education to-day, “intellectual understanding and spiritual co-operation between Great Britain on the one hand and the United States and the Dominions on the other hand have become a commanding necessity.”²

I must emphasize the word, “co-operation,” for Europe can no longer play its traditional role as the source and inspiration of American learning and scholarship. Indeed, there is much to be said for the conclusion that North America will become the intellectual locus of the world for the next epoch in its history.³ What is certainly true is that just as the contours of intellectual endeavour moved, when the medieval synthesis collapsed, from the shores of the Mediterranean Sea to the shores of the North Sea, so they will move to the Anglo-Saxon shores of the Atlantic Ocean as the liberal-rationalist *Weltanschauung* goes to its grave. It could hardly be otherwise when, in less than a decade, continental Europe loses and America adds to its own galaxy of talent such figures as (to mention only a few names) Thomas Mann and Sigrid Undset in literature, Albert Einstein and Peter Debye in the physical sciences, Adolf Löwe and Carl Landauer in economics, Otto Piper and Paul Tillich in theology, Jacques Maritain and Rudolf Carnap in philosophy, and Fritz Kunkel and Wolfgang Köhler in psychology.

Last, but by no means least, I must express my thanks to the librarians of the University of California and the University of Toronto who accorded me staff privileges during the months in which these pages received their final literary form. Separated as I was from my own books (a circumstance which accounts for my occasional inability to give complete reference to the quotations I have used), I shall never forget the patience of the catalogue assistants as they replied to my—apparently—quite unrelated questions. At one moment I would be tracing a book on the history of cement and at the next my attention would be riveted on

² Sir Fred Clarke in *Education and Social Change* (London, 1940), p. 17.

³ A. N. Whitehead would not express himself in such qualified terms. He writes: “For many generations the North American continent will be the living centre of human civilization. Thought and action will derive from it, and refer to it.” In his article in *The Philosophy of Education*, p. 17.

educational theory in Nazi Germany or the history of university settlements. Therein was revealed a perfect symbol of the problem toward the solution of which I hope that this book is some contribution: the subject matter of this inquiry does not find its place in any single department of the contemporary university. The lines of division between the separate schools of science, law, commerce, theology, medicine and the like derive their meaning from a world which is passing away. Its *Geist* of rational individualism expressed itself in politics as representative democracy, in religion as liberal Protestantism, in thought as the scientific movement and in economic life as capitalism. Correspondingly, from each of these angles, the liberal democratic university shows the influence of this *Geist* in the "lifelessness" of all its activities.

One last word. Perhaps it is foolish to expect the new intellectual reformation to take place from within the universities. An Englishman can never forget that during England's century of genius from 1774—the year of Joseph Priestley's discovery of oxygen—to 1859—the year of the publication of Charles Darwin's *Origin of Species*—her unsurpassed contribution to the massive structure of modern science was being built *outside* the universities by Dalton, Priestley, Davy, Faraday, Joule, Wallace and Darwin while original and creative scientific work in the universities was almost non-existent. The situation in the humanities was little better, for the leading figures in history were men like Grote and Macaulay; in philosophy, Spencer and J. S. Mill; and in economics and politics, Ricardo, Bagehot and (since he worked and was buried in London, may we not add?) Karl Marx. It may well be, therefore, that, in this century too, the universities may fail to see that "new occasions teach new duties, time makes ancient good uncouth." Indeed, like Adolf Löwe, I do not expect that our age will produce a positive and creative solution to the problem exhibited in the following pages. To quote his words:

All we can do by way of independent experiment is preparation of a creative minority for the moment when a real break through will become possible. This moment will be determined by developments in the political and social rather than in the educational sphere. A parallel preparation in the educational sphere is indispensable because man has to be formed for his future political task. To overlook, however, the restricted power of any educational effort which is not fostered by political and social reality, would be a hopeless idealism. The two spheres interact during the process of transformation no less than in periods of stability.⁴

⁴ In a letter to the author.

To such a task of preparation this book is offered as a contribution to contemporary discussion. That there is such a minority as that to which Löwe refers I cannot doubt. But too often the university teacher who is aware of the problem feels that, in view of the many demands on his time, it is too much for him. One such teacher, a professor of agricultural chemistry, aptly epitomized the situation for himself and many others when he said to me: "I know that there is a problem. I know, too, that my colleagues and I are evading it: but what opportunity have I left to deal with it, after I have taught my classes, supervised my students' laboratory work, fought the ever losing battle of keeping up with the literature in my special field of soil chemistry and devoted sufficient time to my own research work to maintain my intellectual respectability? I think that we university teachers need a book which would do for us what 'orientation courses' are supposed to do for our first year students."

May this book, by its failings, inspire or provoke someone to write one which will better fill such a need!

ARNOLD S. NASH.

BERKELEY, CALIFORNIA.

Easter Monday, 1944.

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PART ONE

THE PLIGHT OF THE LIBERAL DEMOCRATIC UNIVERSITY

" . . . when it comes to the direction of human affairs, all these universities . . . have far less influence upon the conduct of human affairs, than, let us say, an intractable newspaper proprietor, an unscrupulous group of financiers or the leader of a recalcitrant minority."

H. G. WELLS.

(I)

INTRODUCTION: AN APPROACH TO THE PROBLEM

"It is possible to get an education in an American¹ University."

R. M. HUTCHINS.

A PROFESSOR of education in an American university, which claims to be the largest in the world, subdued to awed silence a meeting of students with the remark that the commonest occasions of death among university students are suicide and motoring accidents at high speed. She then added that these two causes are more closely related than a would-be wit might point out; they have their common origin in a desire to escape life. In the one case it is by a deliberate effort to give up physical life. In the second it is born of an unconscious urge to flee from the boredom of an everyday existence made up of lectures, libraries and laboratory work into the fascinating but unreal world of speed for its own sake.

This sense of purposelessness is exhibited most clearly at the point of transition where a student becomes a teacher in the universities of America. In an evaluation of the quality of university teaching in the sober pages of *The Bulletin of the American*

¹ British readers may legitimately substitute "British" for "American."—A. S. N.

Association of University Professors, the author, I. L. Kandel, writes:² "The young aspirant blithely enters on an academic career. . . . Rarely, if ever, will he hear anything about the human meanings of either scholarship or research, and still more rarely, if at all, will he have been confronted with the idea that his major concern will be with human beings, students, at an important stage of their educational development." Similarly, in the equally responsible pages of the Annual Report of the President of the Carnegie Corporation we read:³ "All over the country teaching and other vacancies are being filled by degrees, not by men and women, the appointing bodies accepting the diplomas as a substitute for the tiresome process of really finding out something as to the professional and personal qualifications of individual human beings." The cynic might comment that therefore American universities are in a worse plight than those at the end of the Middle Ages, for then the dead counters of Scholasticism were substituted for living ideas, whereas in America to-day we allow the bodies with appropriate labels to draw salaries irrespective of whether they are inhabited by living minds.

The situation in other parts of the English-speaking world is no better. A teacher in the University of Cambridge graphically expressed the distrust of students in their teachers and in what they are being taught in a letter to *The Times*:

Our students are missing a sense of values and purpose. They begin to feel that finding a career resolves itself into seeking a niche in a society, which we assume to be permanent, but which actually is in danger of being destroyed by the very forces which we are teaching them to use. They fear that we university teachers are the blind leading the blind, and they vaguely hope that we shall not fall together into the ditch.

That such an estimate is not an isolated protest from one British university is evident to all who care to read the pages of David M. Paton's *Blind Guides*, a penetrating, impressionistic study of life in one of the "modern" universities. He writes:⁴

. . . very few students have compelling convictions. Like their relatives and friends, they regard the possession of compelling convictions not as a privilege or even as a crime, but rather as a luxury. That kind of conviction is unfamiliar which drives you to do something spectacular (that of the Communist,

² October, 1940, p. 453.

³ For 1939, p. 37.

⁴ (London, 1939), p. 17. Similarly, a natural scientist, speaking from the vantage point of that of headmaster of one of England's leading schools, soberly remarks, "When we consider the greatness of the universities' opportunities, we cannot fail to be concerned by the little that is being accomplished." W. G. Humphrey in *The Christian and Education*, p. 29 (London, 1940).



like John Cornford dying in Spain, or the Christian, like Niemöller in a concentration camp), or which keeps you alive and whole in depressing circumstances.

That all is not well in English universities is evident, too, from the tendency to hit out at one's elders and at established customs, loyalties and practices, as illustrated by the famous Oxford "King or Country" resolution. A sober-minded German educationist sees⁵ a relation between the passing of this resolution and Hitler's vision of world domination. "When Hitler learned that Oxford youth . . . decided to refuse to fight for King and country he saw his throne in Buckingham Palace safely erected." When one remembers the part that Oxford has played in British political life, Hitler's mistaken analysis of the temper of British youth can be understood. The debate itself was the product of a demand by these students for a contact with reality which they were not receiving from their teachers. Like all protests born of strong emotional feeling, the students did not say what they meant. If the resolution had been couched, "This house will fight against Fascist aggression," it would have been passed and by the same votes which defeated the original motion!

Moreover, this failure of the English universities to give a sense of purpose to their students has social results nearer home than international affairs. The university which sent out 2,800 appeals for money to its graduates and received 79 replies⁶ is by no means unique.

It is now clear that when the Head of the Institute of Education in the University of London said⁷ that: "There is something amiss, surely, when, with young people, their strictly educational activities, and their often painful struggles to make sense of their world run in quite distinct channels," he was speaking not only of students in the universities where he has taught, the British Dominions and London, but that he has summed up the position in the whole Anglo-Saxon world. His further warning to members of an older generation is necessary and salutary.

Little in the way of settled assurance is possible for this generation, and the experiences of the elders is less relevant to the needs of the young, to the kind of world in which the young will have to live, than at any other time in history.⁸

⁵ Reinhold Schairer in the *Frank Aydelotte* Lecture at Swarthmore College, October 16, 1941.

⁶ Quoted in the (1939) report of *The Conference of Educational Associations* (London, 1939), by Helen M. Wodehouse, p. 280.

⁷ Sir Fred Clarke in *A Review of Educational Thought* (London, 1937), p. 23.

⁸ *Ibid.*, p. 21.

Many writers, especially in the United States, have sought to discover the source of this lack of conviction about the things that matter among university students. Archibald MacLeish, the Librarian of Congress, finds it in the influence of the novels of writers like Hemingway, Remarque and Aldington. The last-named of these writers laconically pointed out in reply that "most students had hardly ever heard of these writers, still less have read them."⁹ The Secretary of the Treasury, Mr. Henry Morgenthau, Jr., finds the source of this mood elsewhere. He maintained, in an address to the graduating class of Amherst College, that "there was widespread disillusionment and cynicism among to-day's college youth because of the failure of the last war to produce a better world society."¹⁰ If that were true there would be less cause for concern since at least it would indicate that students on a large scale took moral values seriously in the sphere of economic and political problems. But in point of fact the trouble goes much deeper than Mr. Morgenthau imagines. What is being questioned is whether *any* values of *any* kind are worth seeking rather than whether it is possible to have faith in a society which, like the individuals within it, fails to practise what it preaches. James Angell McLaughlin, of the Harvard Law School, comes much nearer the truth when he points out that this attitude of cynicism and disillusion indicates "serious failure in education. . . . We have in effect told our youth that they ought to do a better job than we have done; but we have failed to implant in them faiths which we never thought of questioning."¹¹

The real crisis in the universities of to-day has its origin in the crisis in liberal capitalist democracy, for a university, like any other social institution, expresses both the vices and virtues of the social order in which it exists. Thus to examine the crisis in the world of learning is to examine the crisis in liberal capitalist democracy. Yet only a slavish devotion to a doctrinaire Marxism will ignore the fact that a university, like society itself, is not a simple function of the economic system from which it draws its support. For example, the universities of America and England have many resemblances arising from the fact that they owe their continued existence to the successful working of the semi-planned

⁹ See article *This Pre-war Generation* by Mortimer J. Adler, *Harper's Magazine* October, 1940, p. 525.

¹⁰ Associated Press report—date line June 14, 1941.

¹¹ Letter to *The New York Times*, July 11, 1940.

economic system which obtains in each country. But the universities of the two nations also express the divergencies of their social structures. The American universities are the product of the struggle between, on the one hand, an unconsciously accepted aristocratic theory of education in a capitalist society, and, on the other hand, a conscious acceptance of Jeffersonian democracy, continuously fed by the aspirations of those who, over the last hundred years, have fled from a class-ridden and tyrannical Europe. This contradiction is perfectly symbolized in the uneasy side-by-side existence of the ready social acceptance of students who work their way through college and the pernicious would-be social stratification of fraternities and sororities whose names required for their description the decent obscurity of the alphabet of one of the so-called dead languages. The English universities are the product of a struggle between, on the one hand, a consciously accepted aristocratic theory of education in a capitalist society which has still many links with its feudal origin and, on the other hand, the most virile revolutionary-democratic tradition which the world has even seen.¹²

It is because the English universities are so much nearer, historically speaking, to the feudalistic age that publication too often or too early by university teachers is frowned upon. Productivity in the feudal age among the landowners was not a virtue but an inelegance. The landowner lives by renting out his land to producers but the virtue of the business man is himself to increase production. That is why American universities—existing in a capitalist society unqualified by any remnants of feudal and aristocratic traditions—tend more to judge the worth of a university by results; for example, by the number of publications of its teachers or the percentage of Ph.D.s on its staff. This tendency has increased to such a pitch that a prominent American banker, Eli Jackson Reynolds, has been moved to say that “the men of the universities seem to worship the fetish of quantity production. They boast the largest faculties and student bodies, and the greatest number of courses.”¹³

The last few decades have seen the fall of many social barriers which have furnished the ancient universities of England—in view of the complete lack of proportion between resources available and

¹² E.g. when it goes to war it puts labour leaders in the Cabinet and knights in jail.

¹³ In an address given during the Convocation marking the fiftieth anniversary of Stanford University, June 20, 1941.

scholarship produced as compared with a small modern university like Sheffield—with their chief claim to fame. Their ideal has been aristocratic; the mode of conferment of degrees grew out of the custom associated with the bestowal of a knighthood rather than admission to the original *universitas*, which was a craftsmen's guild or a corporation of merchants. The most recent statistics indicate that for some years a quarter of the graduates of Oxford and Cambridge had received their primary education at a publicly owned elementary school. However, this attempted democratizing of these ancient halls of learning has not been without its sad results. Speaking of the British universities as a whole but in particular of Oxford University of which he was so distinguished a head, A. D. Lindsay has aptly summarized¹⁴ the present state of affairs in the following words:

The price we are paying for the democratization or the semi-democratization of our secondary and university education is that education is producing an intelligentsia in the worse sense of that term. We have of recent years constructed a ladder from the primary school to the University, but the conditions under which the boys of poor parents have to climb that ladder are long and excessive preoccupation with examinations and nothing but examinations, and almost enforced neglect of the other sides of education, the training of body and character which the secondary schools as well as the public schools provide.

'Such have been the results of the British solution to the problem of the "aristocratic" university in a democracy. The American solution has been to place university education on a mass basis. Thus 12·7 per cent of elementary school children enter a university or a college or a professional school which claims to give teaching of university status.¹⁵ The result is that, in the caustic words of the President of the University of Chicago:

A student above the grade of moron can proceed to the Bachelor's degree with only a few faint gestures toward the higher learning. . . . There is so little hard work in the ordinary college curriculum that students can support themselves without damaging their grades. This is the net result of all the studies of self-support and scholastic standing that have been made in the last twenty-five years.¹⁶

It is significant to note that Nazi Germany solved the problems arising from the democratizing of the German universities in a

¹⁴ In a letter to *The Times*, January 28, 1941. See also the same writer's *Religion, Science, and Society* (Oxford, 1943), pp. 49 ff.

¹⁵ W. H. Cowley in article, *The University in the United States of America*, in *The University Outside Europe*, edited by Edward Bradby (London, 1939), p. iii.

¹⁶ In *Liberty*, June 14, 1940.

drastic fashion. It brought the process to an abrupt end and admission became open only to an élite chosen in accordance with criteria based on political reliability.¹⁷ But fortunately this way is not open to those countries which still proclaim allegiance to liberal democratic forms of government and the cardinal problem of the place of the university in a democratic society cries to the heavens for a solution.

During the last century, and up to the great depression, the universities of the liberal democratic countries had accepted a theory of the relation between society and the university which was the product of an uneasy marriage between what can be called the "spectator" attitude towards life and the "ambulance" theory of the responsibility of a university to the social order.

The spectator theory is epitomized in the aphorism that truth must be pursued for its own sake. Plato is usually castigated, as for example by Lancelot Hogben in his *Dangerous Thoughts*,¹⁸ for launching this theory on the world. Plato was responsible for many ideas whose influence on European education has been calamitous. The separation between vocational education and liberal education is among them. However, the idea that truth must be pursued for its own sake was not one of them. In Plato's time, as A. N. Whitehead drily remarks,¹⁹ "the age of professors had not yet arrived" and he goes on to add that in Plato's view "the entertainment of ideas is intrinsically associated with an inward ferment, an activity of subjective feeling, which is at once immediate enjoyment, and also an appetite which melts into action." This conviction is a long way from the modern idea that knowledge must be pursued for its own sake, as it is defended for example by Abraham Flexner in his well-known book, *Universities: American, English and German*.²⁰ At times Flexner is driven to a peculiar interpretation of the history of science; thus, he maintains²¹ that "chemistry made no progress as long as men were concerned immediately to convert base metal into gold" and he implies that chemistry only made significant advances by ignoring

¹⁷ For Adolf Hitler's exposition of the ideas behind this scheme, according to Hermann Rauschning, see the latter's *Hitler Speaks* (London, 1939).

¹⁸ London, 1939.

¹⁹ In *Adventure of Ideas*, Cambridge, 1933, p. 189.

²⁰ (Oxford, 1931). More recently Flexner seems to have qualified his previous position and he argues for "the usefulness of useless knowledge" in an article with that title in *Harper's Magazine* for October, 1939.

²¹ *Loc. cit.*, p. 15.

practical ends. Although this view of the matter can still be found in many elementary text-books of chemistry, it is not one which would be defended by more modern chemists who have turned historian.

The real fact of the matter is that progress in chemistry was achieved when chemists ceased attempting the (then) impossible and tried the possible. In other words they became rational. Thus Franciscus Sylvius, who formulated early in the seventeenth century the concept of chemical affinity—and who, incidentally, founded the first university scientific laboratory—was just as “utilitarian” as a typical alchemist like Nicolas Flamel. As a professor of medicine, Sylvius was interested in the chemistry of the digestive processes and it was from such “practical” studies that he derived the basic features of the theory of acids, bases and salts.

In pursuing such socially useful scientific researches, Sylvius, like his contemporary investigators, was following the example of Galileo who, in the words of the doyen of British historians of science, “more than any other man, introduced the change in our manner of thinking that broke with ancient and led to modern science.”²² Galileo’s attitude to the relation between scientific knowledge and human activity is aptly symbolized by the opening pages of his epoch-making *Discorsi e Dimostrazioni Matematiche intorno a due nuoue Scienze*,²³ where he finds the starting point for his presentation of his revolutionary theories—as well as for the theories themselves—in his discussions with the skilled artisans in the arsenals of Venice.

This close connection between scientific discovery and practical application was wellnigh universally accepted less than twenty years after Galileo’s death. In the British Museum among the papers of Robert Hook, perhaps the greatest experimental scientist of his generation, there is a statement dated 1663, describing the aim of the Royal Society of London, which had been founded three years before. It runs as follows:

The business and design of the Royal Society is—To improve the knowledge of naturall things, and all useful Arts, Manufactures, Mechanick practises, Engynes and Inventions by Experiments.²⁴

²² Charles Singer, *A Short History of Science* (Oxford, 1941), p. 212.

²³ Translated by Henry Crew and Alfonso de Salvio as *Dialogues Concerning Two New Sciences* (New York, 1914).

²⁴ Quoted by C. R. Weld in his *A History of the Royal Society* (London, 1848), Vol. I, p. 146.

Indeed, when Sir Christopher Wren drew up the draft of the preamble to the proposed Charter of the Royal Society, he boldly affirmed the usefulness of scientific research in the following terms:

The Way to so happy a Government, we are sensible, is in no manner more facilitated than by promoting of useful Arts and Sciences, which, upon mature Inspection, are found to be the Basis of civil Communities and free Governments, and which gather Multitudes, by an Orphean Charm, into Cities, and connect them in Companies; that so, by laying in a Stock, as it were, of several Arts, and Methods of Industry, the whole Body may be supplied by a mutual Commerce of each others peculiar Faculties; and consequently that the various Miseries, and Toils of this frail Life, may, by as many various Expedients, ready at Hand, be remedied, or alleviated; and Wealth and Plenty diffused in just Proportion to every one's Industry, that is, to every one's Deserts.²⁵

This argument commended itself to the monarch, Charles the Second, whose royal patronage was sought, and he readily approved this preamble to the charter which concluded:

And whereas we are informed that a competent number of persons of eminent learning, ingenuity and honour, concurring in their inclinations and studies towards this employment, have for some time accustomed themselves to meet weekly and orderly to confer about the hidden causes of things, with a design to establish certain and correct uncertainty in philosophy, and have by their labour in the disquisition of Nature to prove themselves real benefactors of mankind; and that they already made a considerable progress by divers useful and remarkable discoveries, inventions and experiments in the improvement of Mathematics, Mechanics, Astronomy, Navigation, Physics and Chemistry, we have determined to grant our Royal favour, patronage, and all due encouragement to this illustrious assembly, and so beneficial and laudable an enterprise.²⁶

Among these early pioneers in the field of scientific investigation, no one saw more clearly or urged more strongly that a practical and utilitarian motive was basic to their enterprise than the aristocrat Robert Boyle. He published a book on the relation of science to technology with the significant title, *Usefulness of Natural Philosophy*, and, in a letter to Marcombes, October 22, 1646,²⁷ he wrote, "The other humane studies I apply myself to are natural philosophy, the mechanics, and husbandry, according to the

²⁵ *Loc. cit.*, p. 120.

²⁶ *Ibid.*, p. 121.

²⁷ Quoted by J. F. Fulton in his article; *Robert Boyle and His Influence on Thought in the*

principles of our new philosophical college, that values no knowledge, but as it hath tendency to use."

Boyle and his contemporaries had moved so far from the typically Greek attitude toward manual labour and knowledge, that by 1667 the first historian of the Royal Society, Bishop Thomas Sprat, could write,²⁸ "Invention is an Heroic thing, and plac'd above the reach of a low and vulgar Genius."

By the turn of the century even mathematics had been brought into the utilitarian tent and in 1701 J. Arbuthnot wrote an *Essay on the Usefulness of Mathematical Learning*.²⁹

True indeed are Lancelot Hogben's words:

Great formative periods in the record of science have occurred when scientific investigators have been interested in the social uses to which their discoveries are put. . . . If there is any lesson to be learnt from the history of modern science it is this. Professional exaltation of theory to the detriment of practice is the hall mark of cultural decay.³⁰

The statement that truth must be pursued for its own sake has been too often a polite way of saying that academic knowledge, particularly in the social sciences, must never be sullied by contact with the realities of the hidden struggles within society. A story is told that toward the close of the last century a professor, clad precariously in a zinc bath, one morning was seen by a college porter jiggling merrily round the quadrangle of the college. In reply to the agitated requests of the shocked porter that he should seek the shelter of the porter's lodge, the professor airily waved him away, pointing out, with lordly dignity, that the porter seemed unaware that he, the professor, was now an oyster. Over port in the senior common room that same evening the professor's colleagues commiserated with each other over the madness of their colleague, for had he not the previous evening shown conclusively that at last he had satisfied himself that he had worked out a theory in pure mathematics which could never be used by engineers, or any other practically minded person, for any use whatsoever? A young scholar, a visitor for the evening being looked over as a future fellow, cynically pointed out that since insanity is a refusal to face reality, their unfortunate colleague was simply mad on both occasions, the only difference being that

²⁸ P. 392. *The History of the Royal Society* (London, 1667).

²⁹ See p. 410 of his *Life and Works*, ed. by G. A. Aitkens (1892). (Reference from G. N. Clarke, *Science and Social Welfare in the Age of Newton*, p. 86, Oxford, 1937.)

³⁰ P. 242 of *Dangerous Thoughts*, London, 1939.

now it was publicly recognized by the college authorities. He was not invited to be a fellow of the college.

There is considerable truth in the contention that the ideal of the disinterested student, pursuing knowledge "for its own sake," simply expresses the interest of those dominant groups within society who have every reason for insuring that, although scientific knowledge may be used in industrial enterprise, yet it shall not be used in the sphere of economic reconstruction nor to shed light on the less reputable offspring of the marriage between factory production and a capitalist economy.

One should add, lest the truth in the foregoing argument be dismissed as Marxism, that the Soviet régime also has its clichés which, backed up by the threat of, at best, exile and, at worst, liquidation, protect the interests of the privileged groups of bureaucrats whose prestige and security rest on the continuation of the Stalin régime. In every society there have been and always will be, certain groups enjoying privileges—the prelates and barons of the Middle Ages, the entrepreneur and his satellites of a capitalist society, the bureaucrat of any planned economy. And in every society, "getting at the facts" will meet with the opposition of these privileged groups since their self-confidence, as well as their social prestige and security, rests upon a particular interpretation of "the facts of the case."

In actual fact, however, even in its heyday in the nineteenth century, this spectator theory was never adopted in practice. It was during this century that the University of Oxford, for example, modelled its most important course—*Literæ Humaniores* or "Greats"—so that it would produce the political rulers who could function in the rapidly expanding commercial empire which was being built up at home as well as abroad. It was based on the synoptic study of classical culture which, as Adolf Löwe suggests,³¹

... in spite of the wide gulf of time separating it from the nineteenth century, had two important features in common with it: the driving force in both civilizations was the rational and moral autonomy of individuals; and in both cases it was on the outlook and conduct of a privileged minority as judged by a popular majority that the order of the whole rested.

This conviction that learning must be related to social need was (and is) reflected, with the curious exception of theology, throughout the whole Oxford curriculum. Thus the first professor of

Military History, Spenser Wilkinson, in his inaugural lecture in 1909, said that "I conceive of the University as a community of workers for England," whose task in education as distinct from research is "the training of servants for the nation, a training for citizenship and for that statesmanship which is but citizenship raised to a higher power."³²

The social life of the Oxford college, represented by debates at the Oxford Union and games in the afternoon, completed the training of the "gentleman-amateur" who in home politics as a cabinet minister or in the Established Church as a bishop or in the "far-flung" Empire as governor of a colony, could be a worthy son of his college.

Oxford is not the only university which has trained for the professions. In fact, at no time since the earliest university in Europe was founded in the tenth century at Salerno in Italy for the training of physicians or, at a later date in England, King's College, Cambridge, was founded in 1316 for the special purpose of providing "clerks for the King's service," or, in the United States, Harvard University was founded by the early pioneers, who, to use their own words, "dreaded to leave an illiterate Ministry to the Churches when our present Ministers shall lie in the dust," have universities restricted themselves to the teaching or pursuit of abstract learning.³³ What makes Oxford unique is that, although it may be the home of lost causes, it can be the mother of (minor) revolutions. Thus the same sense of public responsibility, which drove its sons into lonely outposts of Empire, provided Samuel Barnett with a ready audience when in 1875 he made his first visit and argued that Oxford could no longer view as a matter for unconcern the wretched conditions in the East End of London where, as in other large cities, there lived herded together the unhappy victims of an industrial civilization. Barnett³⁴ himself records that his hearers

³² Pp. 4-5, Oxford, 1909.

³³ In the early years of the present century, Alfred Marshall sought to justify the increasing place which had been given to the study of economics in the university on the ground that the nation had "an interest in the supply of trained economists" and that "the curriculum would afford a preparation for business & public service." *The New Cambridge Curriculum in Economics* (London, 1903), pp. 9 and 14.

³⁴ P. 12 of his chapter *University Settlements* in *University and Social Settlements*, edited by Will Reason (London, 1898). For a contemporary account by Barnett of his appeal to Oxford men, see the paper *Settlements of University Men in Great Towns* which he read at St. John's College, Oxford, in 1883. It is printed as Appendix A of *Toynbee Hall* by J. A. B. P. (London, 1885).

. . . especially those who directly or indirectly felt the influence of T. H. Green, were asking for some other way than that of institutions by which to reach their neighbours. They heard the "bitter cry" of the poor; they were conscious of something wrong underneath modern progress; they realized that free trade, reform bills, philanthropic activity, and missions had made neither health nor wealth. They were drawn to do something for the poor. Charity organization societies had taught them not to give doles; they had turned from preachers who said, "Give up your business and live as monks"; they were not contented with reformers who came saying, "Change the laws, and all will be well," nor philanthropists who said, "Support our charity to meet the need," nor with religious teachers who said, "Subscribe to our church or mission."

Barnett's pioneer work was epoch making; more than a thousand university settlements came into existence throughout the world in less than fifty years after the opening of Toynbee Hall at Whitechapel in 1885. The first settlement outside England was founded only two years later in Delancey Street, New York City, by Stanton Coit, a liberal humanitarian who had spent three months as a resident visitor in Toynbee Hall in the early part of 1886. Jane Addams also was inspired by a visit to Whitechapel and in conjunction with Ellen Starr founded Hull House, Chicago, in 1889.

It is an illuminating commentary on the settlement movement that the leaders of working-class movements in all countries have viewed it as one calculated to ease rather than remove the tensions in our modern industrial society. Such an estimate, it must be admitted, is, in the main, substantially justified. There have been notable exceptions; Toynbee Hall, for example, has been a pioneer of social investigation and its officers and residents have sought—albeit somewhat cautiously—to implement their findings. Their caution, too, has not been without justification. To any who would urge that the university settlement should enter the arena of political controversy they could reply, and with truth, that that would mean the departure from impartiality in their investigations. They could argue, for example, that in America, Jane Addams had so vehemently defended the rights of labour unions to strike for proper hours and wages that she was incapable of seeing a problem from any standpoint other than that of the urban industrial worker, a limitation which led her to condemn as provincial the farmers of the Chicago hinterland who went on strike for a better price for their milk.³⁵

That it is not unfair to regard the set of social ideas behind the

³⁵ See *This Nation under God* by A. E. Holt (Chicago, 1920), pp. 80-91.

settlement movement as a whole as "the ambulance theory" of social action is evident from the official expression of the aims of one of them:

Oxford House, in Bethnal Green, is established in order that Oxford men may take part in the social and religious work of the Church in East London; that they may learn something of the life of the poor; may try to better the conditions of the working classes as regards health and recreation, mental culture, and spiritual teaching; and may offer an example, as far as in them lies, of a simple and religious life.

It is significant that the improvement of the conditions of the working-classes was limited to "health and recreation, mental culture and spiritual teaching." It was no accident but deliberate policy that any attempt to change the economic system—or indeed any intellectual consideration of that possibility—in which were produced the industrial depressions whose occurrence made poverty inevitable, was excluded. The social function of the settlements is, as it always has been, to moralize the players and not to change the rules of the game.

One can sum up the impact of the university settlement movement on society by saying that, like the Red Cross in wartime, it helps to keep life from degenerating into a consistent inhumanity but it does not materially alter the struggle itself. Like the Red Cross, the settlement movement neither wins wars nor abolishes them. Therein is revealed both its genius and its limitations.

However, since the great depression, there has been a growing awareness that the scholar and scientist in relation to society must accept the role of participant. Among university teachers this recognition has been given moving literary expression by a Harvard professor of mathematics, P. W. Bridgman, in the opening words of his *The Intelligent Individual and Society*.³⁶

As I grow older a note of intellectual dissatisfaction becomes an increasingly insistent overtone in my life. I am becoming more and more conscious that my life will not stand intelligent scrutiny, and at the same time my desire to lead an intelligently well-ordered life grows to an almost physical intensity. I realize that I have only a murky awareness of what is going on. I can ask myself all sorts of questions that I cannot answer, yet which I feel I ought to be able to answer. I am not at all sure that my actions are decently well adapted to procure the ends which I have in view; nor, in the few cases where I attain to this moderate degree of self-consciousness, am I at all sure that the ends which I have in view would be pleasing to me if I could envisage all the consequences. In short, I am not able to answer any question with regard to

my life, whether concerning fact or motive or chance of success, with even an approach to that clearness and completeness which I demand with regard to my scientific activities.

The things which bother me most seem to involve my relations with other people. The irrationality of the relations of people to each other obtrudes itself more and more. I am coming to appreciate and emotionally accept the idea that man in present society is more than he realizes an irrational animal, and that most of his social reasoning is a veneer to give a fictitious respectability to actions dictated by emotion or by a common sense which has eluded analysis. Not one of our social institutions actually rests on the secure foundation that we so easily assume when we refute the sceptic or instruct our young. Never has any institution been justified in terms that anyone capable of close thinking could accept without stultification. Yet if ever the tragic need for close thinking and intelligent convictions on social questions was obvious it is at the present. The problem of how I can live an intelligently satisfying life in this environment presses upon me.

It is significant that when one of Bridgman's fellow mathematicians—G. H. Hardy of Cambridge—defends his place in society, he does so, after admitting that, generally speaking, higher mathematics is useless, in a book with the revealing title *A Mathematician's Apology*.³⁷

Even philosophers cannot stand aloof from the social problem of to-day. One of them, Jacob Lowenberg, writes:³⁸

... under ordinary circumstances it is well for the philosopher to remain aloof from the political issues and the partisan struggles of the day. But when momentous things are at stake detachment becomes impossible. Before the depression my interest in the social sciences was largely academic. The depression stirred me deeply and led me to reflect deeply on political and economic theories.

The contention that the scientist has social responsibilities has been expressed most notably in the volume *The Frustration of Science*,³⁹ by a group of eminent British scientists. It is, of course, easy to say that this book makes it clear that scientists, like fools, rush in where angels fear to tread and to add that in the sphere of politics scientists no less than ordinary mortals do not achieve

³⁷ Cambridge, 1940.

³⁸ In a note to explain why he wrote the article, *Reflections on Recovery*, in *The American Scholar*, Vol. 10, p. 382.

³⁹ London, 1935. Since the publication of this and other volumes the concern of scientists throughout the world with the social repercussions of their investigations has expressed itself in the formation of an international committee on Science and its Social Relations by the International Council of Scientific Unions at its meeting in 1937, on the suggestion of the Academy of Sciences of Amsterdam, whilst both the British Association for the Advancement of Science and its American counterpart have each formed a special division for the study of the social and international relations of science to work together in close co-operation.

unanimity of conclusion. One of the authors, Frederick Soddy, seeks⁴⁰ to remove "the frustration of science" by replacing financiers and politicians in the government of modern society by scientists and engineers, whereas one of his fellow authors, J. D. Bernal, offers⁴¹ as an alternative solution to the problem the conviction that science should seek a new master instead of big business; presumably, judging from the rest of his writings, the bureaucrats of a régime under the dictatorship of the proletariat.

This reaction of university teachers against the traditional notion that the university must stand aloof from the tensions within modern society, draws much of its strength from the pompous fatuity with which the reaction in question has been attacked. Thus the Senior Proctor of the University of Oxford in his Annual Report for 1936, wrote:⁴²

The increasing traffic of Senior members with what I may call the vulgar currency of party politics, their closer association with the more controversial aspects of undergraduate life, these are new and, in my opinion, disturbing phenomena. A reasonable detachment of outlook is the condition precedent of education. The maturing mind is more receptive than relevant, sentimental rather than sceptical, and it is the jealous care of a tutor to persuade his pupil that it is possible to be dispassionate without ceasing to be generous. This task is apt to be obscured by the dust of popular recrimination.

A man who could write such sentences has no realization that true impartiality in the sphere of scholarship does not consist in saying that there is much to be said on both sides but rather in maintaining that it is expressed in a resolute attempt to discover the truth between contending theories. The scholar then has a moral duty as a citizen to expound and defend that truth with the humility of one who knows that there is a truth which transcends his truth but also with the resolution of a man who chooses, knowing with James Russell Lowell, that

. . . the choice goes by forever
'Twixt that darkness and that light.

An attempt has been made by J. R. Baker in his *The Scientific Life* (London, 1943) to garb such a point of view in a cloak of intellectual respectability. It is difficult to take seriously an author who tells his readers that "planned research is futile" (p. 75) and

⁴⁰ *Loc. cit.*, pp. 8-9.

⁴¹ *Ibid.*, p. 78.

⁴² Reported in *The Times*, March 18, 1937.

that "among scientists conceit and arrogance are rare" (p. 28). A more fundamental criticism of Baker's exposition is that he completely ignores the difference between the psychology of scientific discovery by the individual and the sociology of the scientific movement. No one in his senses suggests that the actual discoveries of the scientist can be planned but that is quite different from saying that the general direction along which research should go ought not to be and cannot be planned.

In parenthesis one might add that the true attitude was well exemplified in the decision of the Master of Balliol, A. D. Lindsay, to fight the Oxford city parliamentary by-election against the "Munich" policy of Mr. Neville Chamberlain.

Among students this recognition that the university is inextricably caught up in the struggles within society was forcibly illustrated a few years ago in a strike at the London docks. The police were called in, not to keep peace between the striking and non-striking workmen, but between medical students who volunteered to unload ships at the docks and economics students who, with equal ignorance of the issues involved, set out to prevent the medical students from reaching the docks. The students were told by their elders and betters that a strike was not their concern and that their business was to study. American students would, and presumably have, received the same advice from administrative heads in similar situations. That was one reason why isolationism with respect to the war against Nazi Germany was so strong in some circles in American colleges. The students' unconscious logic was: why interfere in a struggling Europe if I have no concern with struggles within my own nation? This logic, on its premises, is unassailable. Those university teachers who condemned the attitude behind it should have been among the first to admit how little awareness of the fundamental principles, in terms of which the changes and chances of this fleeting life can clearly be interpreted and understood, they were passing on to their students. They should have been; but, like the rest of their colleagues, they failed to see that the liberal democratic university by rejecting any real attempt to discover and then teach a unified conception of life refuses to be a university. It was largely because the totalitarian philosophies presented what appeared to be the only live option to the confusion and chaos of the liberal world view, which regards each academic subject as autonomous, that students on

munism. It is for this reason, too, that those students in the universities of the Anglo-Saxon world who are alive to economic and political realities are easily influenced by Marxism and its doctrines.

I am not suggesting that any one of these philosophies of the relations between the university and the social order, which I have called the spectator theory, the ambulance theory and the participant theory, has been either consciously or exclusively held. In fact the contrary is more nearly true. They have been present not as deliberately held theories but as tendencies influencing policies and moulding attitudes. Often all three theories have been held simultaneously, a possibility which arises not only from the tendency toward confusion to which the human mind is prone but also from the undeniable measure of truth in each of them. The need of the moment is to discover what that measure of truth really is. It is only too easy for, say, the participant theory by way of reaction against the spectator theory to degenerate into the notion that the universities are service stations for the convenience of a democracy that makes ease its god and "to furnish the world with good doctors and lawyers and chemists, for Mr. Babbitt needs them for his comfort."⁴³ Whatever a *true* university is, that is not it.

Thus to say that the university has obligations to the social order is not to say that it must satisfy only the demands which society can make articulate; a university should seek to make society aware of what society ought to want as well as to satisfy those wants it readily says it has. There will never be lacking voices to make clear those latter wants but society will rarely look with equanimity on a university which seeks to criticize contemporary norms and standards; yet such a task is indeed inescapable if a university seeks to play, as it ought, the former role. However, since a university is what it is mainly because the society in which it exists is what it is, to indulge in such criticism is to tread the painful path of self-criticism.

In days like the present the foremost task is to bring into the consciousness of society those presuppositions of an epoch which are taken for granted—what William James⁴⁴ called the premises which are never mentioned. Never have they been better described than by the late T. E. Hulme in his *Speculations*.⁴⁵

⁴³ Walter Kotschnig in *The University in a Changing World* (Oxford, 1932), p. 7.

⁴⁴ *Pragmatism* (London, 1907), p. 8.

⁴⁵ (London, 1924), p. 50.

There are certain doctrines which for a particular period seem not doctrines, but inevitable categories of the human mind. Men do not look on them merely as correct opinion, for they have become so much a part of the mind, and lie so far back, that they are never really conscious of them at all. They do not see them but other things *through* them. It is these abstract ideas at the centre, the things which they take for granted, that characterize a period. . . . It is these abstract things at the centre, these *doctrines* felt as *facts*, which are the source of all the other more material characteristics of a period.

Following V. A. Demant⁴⁶ I shall call "these doctrines felt as facts"—dogmas. They are indeed held dogmatically since they indicate habitual ways of looking at things. In a sense we can say that they cannot be argued about since they inevitably provide the counters in terms of which we argue. That is why, if we refer to the "doctrines" of an age as the products of the intellectual attempt to give explicit formulation to these dogmas, we can always say that the dogmas of a period, or a class, or a nation, will transcend and so they can never be completely described by the appropriate doctrines.

The network of the dogmas of our age is liberalism. To say that is not to abuse liberalism but to state a fact. All significant dogma carries with it a view of man and an interpretation of history. According to liberalism man is fundamentally good and his inherent goodness is indicated in his increasing capacity, by using his intelligence, to solve all the problems that come his way. Such is the basis of the liberal belief in progress—the dogma that man, like the world itself, is slowly getting better so that history becomes a progressive realization of man's ideals as defects in social and economic organization are remedied and education becomes more widespread.

Such are the essential outlines of the faith of the typical university teacher of our era in the liberal democratic countries. It is this faith which is now being shaken far more rudely by events than it ever could be by argument. The tragic happenings of the last few years have indicated not only the failure of man as man but in particular the failure of thinking man. That is why an English poet, W. H. Auden, can complain with truth that "what he saw going on to-day among the masses is the rejection of the clerk, the 'knower' be he priest, scientist or writer."⁴⁷ The thesis of the treason of the intellectuals which raised such a storm of abuse when it was put forward in Paris in the late 'twenties, by

⁴⁶ *The Religious Prospect* (London, 1939), p. 21.

⁴⁷ At a conference in Queen's College, Birmingham, England, in 1938.

Julien Benda, the French literary critic, in his *La Trahison des clercs* has been unfortunately too well vindicated. The intellectuals of our age—the modern equivalent to the medieval clerk or *clerici*—have inherited more than their share of the world's knowledge. However, maintains its author, instead of treating that as a right with its corresponding duty of inspiring the cultural tradition, they have treated it as a privilege, as a right without its duties. They have sold their skill, their science, their knowledge to the cause of class or nation. Contrary to what some of his critics⁴⁸ suggest, Benda is not arguing—although at times⁴⁹ he gives the impression of doing so—that the scholar's task is simply to be concerned with the truth for its own sake. On the contrary he justifies the "clerk's" descent into the marketplace so long as he does so in the name of a value higher than class, race or nation.

When Gerson entered the pulpit of Notre Dame to denounce the murderers of Louis d'Orleans; when Spinoza, at the peril of his life, went and wrote the words *Ultimi barbarorum* on the gates of those who had murdered the de Witts; when Voltaire fought for the Calas family; when Zola and Duclaux came forward to take part in a celebrated lawsuit (Dreyfus affair); all these "clerks" were carrying out their functions as "clerks" in the fullest and noblest manner.⁵⁰

The clerk has every right, adds Benda, to take the part of a race or nation—even his own nation or his own race—but only when the cause of that nation or race coincides at the time with the cause of a justice that transcends his race or nation. Benda's complaint is against the "clerk" of the type of his own countryman Barres who could say "even if the country is wrong, we must think it is right," or the German theologian, von Harnack, who could discountenance Bethmann-Hollweg's apology for the German violation of Belgian neutrality in 1914 on the ground that the statesman was trying "to excuse that which did not need excusing."

It is true that Benda has little awareness of the depth of the political problem. He does not see with adequate consistency that the answer to those "clerks" who "exercise political passions with all the characteristics of passion—the tendency to action, the

⁴⁸ E.g. by Joseph Needham in his essay, *Science, Religion and Socialism*, in *Christianity and the Social Revolution*, ed. by John Lewis (London, 1935), p. 421 ff., and by Max Lerner in *Ideas for the Ice Age* (New York, 1941), p. 15.

⁴⁹ E.g. p. 43 of the English translation by Richard Aldington (New York, 1928) where he defines *clercs* as "those whose activity essentially is not the pursuit of practical aims, all those who seek their joy in the practice of an art or a science or metaphysical speculation."

⁵⁰ *Ibid.*, pp. 50-1.

thirst for immediate results, the exclusive preoccupation with the desired end, the scorn for argument, the excess, the hatred, the fixed ideas,"⁵¹ is not to say with Goethe, "Let us leave politics to diplomats and soldiers," but for the "clerk" to accept freely his political responsibility, knowing that he has a loyalty beyond his political party or social class or fatherland. Like the Christian, he must definitely learn to be in the world but not of it.

So long as the intelligentsia, like the German intellectuals of the pre-Hitler régime, refuse to soil their hands by engaging in politics, then the state is left without protest to its fate at the hands of the ignorant demagogue who can appeal, like Hitler, to the lowest in man. In the modern collectivized world, that means the end of free scholarship even in a subject apparently as far removed from politics as anthropology. The autobiography, *What Hitler Did to Us*,⁵² by Eva Lips, the wife of the distinguished anthropologist, Julius Lips, who was head of the Rautenstrauch-Joest Museum in Cologne, shows what happened to a scholar like her husband who believed that a scientist should be exclusively concerned with "truth." He refused to use his prestige or to allow his museum to be used for the propagation of the Nazi racialist doctrines and, on Hitler's accession to power, Lips' position became untenable. He lost his appointment, pension and the opportunity to continue his scientific work and in his efforts to retain possession of the original material, arduously collected for his famous book, *The Savage Hits Back*,⁵³ he had to fight threats, blackmail, slander and ceaseless persecution by the police. The Nazi case against him was not even that he was a Socialist or a Pacifist or a Jew. He simply sought to be left alone, to be completely "unpolitical."

Presumably Benda would think that that fact made Lips' plight all the more unfortunate and his treatment all the more unjust. Yet was not this attitude—of which Lips was simply a typical exponent—one cause of that plight? For generations the highest minded German university teachers—and indeed the German intelligentsia as a whole—had made "the search for truth" their god and had ignored the misery of the German masses. Like Goethe, who, speaking of the indifference of his circle to the French Revolution, had said, "We took no notice of news or newspapers; our object was to know Man; as for men, we left them to do as they chose," they had refused to go out on to the street, and the coast was left clear for the tavern orator whom they despised

as an ignorant demagogue. World history might have been different had they recognized, to use the forceful language of the first President of Stanford University, David Starr Jordan, forty years before Hitler came to power, that society has "the right to expect the scholar to serve as the antidote to the demagogue." The "man in the cheap newspapers," to use Mrs. Lips' description of the Nazi Führer on the day he became the German Chancellor, had made only too evident in *Mein Kampf* his estimate of the men of knowledge.

God knows the Germans have never been lacking in "knowledge." Germany's trouble has been not that the brains governing her were too little educated but too fully. The heads of the rulers were stuffed with information and empty of instinct, utterly bereft of energy and audacity.

Why? Because the so-called intellectual class shut itself away from the rest of the workaday world. They had no living ties with the classes below them. Two results followed: First, this contemptible "Upper Ten Thousand" did not, because they could not, understand the masses. Second, they lacked the will power which is always stronger in the primitive strata of society.

Is it surprising, therefore, that the "unpolitical" professors could not recognize—still less comprehend—their fate when it stared them in the face and they were helpless before it? Was it enough to emerge like Lips and a few others from such a terrible ordeal retaining their personal integrity and honour? The answer is a decided negative, for the simple fact is that the true "clerk" has a political responsibility to save culture from barbarians and a cultural responsibility to save politics from brutes. There will be in any case sufficient "clerks" to prostitute their learning at the behest of the brutes and barbarians.

I do not suggest that the scholar who accepts his political responsibility with the constant qualification arising from a loyalty beyond his party or his country will have an easy task. During the French Revolution the Academy of Science in France was abolished mainly because the bulk of its members, consisting of elderly scholars, refused to take part in politics. This was not true of Lavoisier, and in May, 1793, he lost his head. In reply to those who urged that, in view of his services to his country as indicated both by the application of his own scientific discoveries and by his refusal to desert France and go to England, Lavoisier's life should be spared, the judge, the terrible Coffinbals, replied "The

Republic has no need for learned men. Let Justice take its course."⁵⁴

Although, on the one hand, the modern intellectual has proudly remained aloof from politics, yet on the other hand, in no age has so much intellectual labour been given to the provision of doctrines to justify political hates and to demonstrate that one's own side is the incarnation of good while its enemy, whether Jews, Capitalists or Fascists, is the embodiment of evil, as in our own. These doctrines invariably base themselves on the theory of evolution in some form or other in the attempt to prove that one's group, be it class or *Herrenvolk*, is on the wave of the future. It is not simply the desire to have Fate, as omnipotence without character, or God, as omnipotence with it, on one's side. That is an old temptation; both rulers and ruled since the dawn of history have sought justification for their policies from prophets and priests, seers and sages. Thus Henry VIII of England asked for the approval of the humanist philosopher, Sir Thomas More, upon his proposed course of action just as King Ahab of Israel, centuries before, waited upon the verdict of the prophet Micaiah, the son of Imlah, before he went to war. In both cases the mind of the monarch was already made up and the prophet, for giving unwelcome advice, was put in prison and fed with "the water of affliction and the bread of affliction." Men of power, whether monarchs or millionaires or Marxists, only allow criticism when it does not go so far as to threaten policies, that is, so long as it does not embody itself in politics. Thus Kaiser Wilhelm II allowed his court chaplain, Frederick Stroecker, to preach a somewhat paternalistic version of Christian socialism until it led to the birth of a political party. Then Stroecker's services were dispensed with. We see here why shrewd monarchs, like Frederick the Great of Prussia and Katherine II of Russia, employed foreigners in Voltaire and Diderot respectively "to speak the truth before the king"; foreigners in the nature of things can have little political influence and, more important, they can be easily dismissed.

What makes unique the contribution of the modern "clerk" who has given himself to the intellectual organization of political prejudices is that he finds the final justification of his doctrines in the "scientific" account of the processes of history. Thus the Nazi philosopher, Heidegger, on being appointed Rector of

⁵⁴ See *Antoine Lavoisier, the Father of Modern Chemistry* by D. McKie (London, 1935).

the University of Freiburg, made a speech whose thesis was:

The will to the essence of German University is the will to science, meaning a will to the historico-spiritual mission of the German *Volk* as a *Volk* experiencing itself in its State. Science and German destiny must attain power especially in the essential will.⁵⁵

Similarly Communist writers attempt to prove scientifically that Marxist socialism is a historical necessity, for can they not say with Engels⁵⁶ that "in nature the same dialectical laws of movement are carried out in the confusion of its countless changes, as also govern the apparent contingency of events in History"? It is upon this presupposition that Engels in *Socialism, Utopian and Scientific*⁵⁷ could set the shape of all subsequent Marxist thought. He argued that Marxist socialists (unlike, so he claimed, Utopian-democratic socialists or Christian socialists), can base their political programme on a scientific analysis of the facts of history so that they can grasp the pattern of social evolution from conflict to harmony. Thereby, argue Engels and his disciples, Marxist socialists will know, with the precision of the scientific thinker, when the inherent contradictions of capitalism produce the requisite revolutionary situation for a successful Communist *coup d'état*.

Both Marxists and Nazis appeal to science (this time biology), as the final authority for their opposing views of human nature—what German scholars call *Anthropologie*. By way of justification it is solemnly stated in the Nürnberg racial laws that

There is a greater difference between the lowest forms still called human and our superior races than between the lowest man and monkeys of the highest order.

Similarly the English democratic Marxist, L. A. Fenn, justifies⁵⁸ his particular view of democracy in terms of an elaborately worked out account of the unique character of the human individual as indicated by recent biological research.

And, to complete the round of the political clock, we have an American business-man, turned diplomat, in Joseph E. Davies who interprets his *laissez-faire* conception of human nature in terms of biology. In his illuminating and shrewd account of his

⁵⁵ Quoted by Aurel Kolnai in *The War Against the West* (London, 1938), p. 312.

⁵⁶ In *Dialectics of Nature*, E.T. by Clemens Dutt (London, 1940).

⁵⁷ London, 1892. For an illuminating treatment of Engels and Science see the *Labour Monthly Pamphlet* with that title by J. D. Bernal (London, 1936).

⁵⁸ See his *Democracy and Revolution* (London, 1934).

experience as Ambassador for the United States to the Kremlin, *Mission to Moscow*, he writes:⁵⁹

Based on the idea of a selfless society, the state here is constantly threatened with the fact that it cannot destroy the instincts of human nature toward self-interest. These are imbedded in the glandular, nervous, and physical organisms of men and are the resultant of the atavistic forces of the centuries.

In Great Britain, too, capitalistic critics of Marxism are not far behind in claiming the authority of "science" as they seek to apply heat if not light to the problems of modern society. The judgment of J. M. Keynes⁶⁰ is that in view of its "obvious scientific deficiencies . . . Marxist Socialism must always remain a portent to the historians of Opinion—how a doctrine so illogical and so dull can have exercised so powerful and enduring an influence over the minds of men, and through them, the events of history."⁶¹ Keynes is by no means the only academic economist who has taken this supercilious attitude toward Marxism. A writer of a somewhat different school, F. Y. Edgeworth, opens his review of J. S. Nicholson's *Revival of Marxism* in the *Economic Journal*⁶² with the words:

We have much sympathy with those who hold that the theories of Marx are beneath the notice of a scientific writer. However, the refutation of prevailing fallacies has always been recognised as part of the economist's province. It is indeed a peculiarity of our science that its investigations generally start from a point which is, so to speak, behind the zero of ignorance. It is necessary to escape from error before reaching positive truth: "*Sapientia prima stultitia caruisse.*" Accordingly, gratitude is due to Professor Nicholson for having performed the heavy task of re-examining *Das Kapital* and other writings of Marx. The judgment which many of us have been content to base on samples of this literature is not confirmed by a more thorough examination. . . . Even the humble merit of consistency was wanting to Marx . . . the importance of his theories is wholly emotional.

So convinced is the modern world that science holds the last word that the intellectuals of the organized pacifist movement of

⁵⁹ P. 399 (New York, 1941). For a sustained effort to give academic respectability to the view that "economics, so far as it is a science, is a biological science," see the article *Surveying the Boundary Line between Government and Private Enterprise in the Field of Business* by James M. Barker, in the *American Economic Review*, Vol. XXXIII, No. 1, March, 1943.

⁶⁰ Pp. 34-5 of *The End of Laissez-faire* (London, 1926).

⁶¹ In fairness to Lord Keynes one should add that now he has been converted to an under-consumptionist analysis of the trade cycle (see his *General Theory of Employment*, London, 1936) he would not express himself to-day in such extravagant terms.

⁶² Vol. 31, p. 71.

Great Britain recently published a pamphlet under the title of and dealing with the rhetorical question: "Is Pacifism Scientific or Sentimental?" Their reply, it need hardly be said, is that pacifism and not militarism is accorded the approval of the great god of our age, science.

That science is becoming a kind of established religion for the masses is to be expected when it has its endowed institutions to which rich men leave large sums in much the same spirit with which the medieval merchant endowed chantries and when, amid the ritual of after-dinner speeches, science is thanked for increasing the happiness and well-being of mankind as if it were a benevolent deity. It is, however, a matter for alarm when this veneration of science runs, as it does, throughout the whole of modern scholarship. Thus in his book, *Medieval Panorama*,⁶³ G. C. Coulton writes the astonishing sentence, "To divorce political economy from ethics is as unscientific as the divorce between any other two sciences." In quoting this sentence I am not so much seeking to draw attention to the carelessness with which such a distinguished scholar can refer to ethics as a science (as a Cambridge man he has plenty of precedent, for is not Moral Science taught as a subject in that university?); nor am I concerned with the question of whether the strange phrase, "as unscientific as the divorce between any other two sciences," has any meaning, but rather with what will happen to learning if the contemporary uncritical and meaningless worship of "science," as exhibited in this quotation, continues.

In the whole domain of knowledge the predominant mode of thinking has been so deliberately modelled on the natural sciences that it is not an exaggeration to say that the scientist in the modern world receives a veneration which for human credulity can only be compared with the superstitious regard which the medieval peasant paid to his priest. We perceive to-day with ease the religious superstitions of the medieval world but it is less easy to recognize that we can be provincial in time as well as in space, and a later generation will view our superstitious regard for science with the same superior tolerance which we in our day condescend to offer to our intellectual ancestors.

However, in the meantime we learnedly speculate and experiment as we try to solve the modern equivalent to the medieval problem of the number of angels who can dance on the point of a

⁶³ P. 332 (Cambridge, 1938).

needle. The modern archangel is measurement and gaily do we invoke his aid to measure the immeasurable. Thus Hornell Hart, who occupies the chair of sociology in Duke University, set out to measure happiness. Apparently he believes that since statistics of the death-rate of babies have been employed successfully in exploring the factors which govern the infant death-rate and since the application of the accurate measurement of space and time occupies a prominent place in modern transportation, it is advisable to apply "these methods of precise measurement" to "the crucial question of happiness." He describes in his book⁶⁴ an instrument which he calls the "Euphorometer" for measuring happiness in "Euphor-units." With the help of an elaborate array of charts, diagrams, questionnaires and an emotional scale in which happiness appears at 100 per cent., ecstasy as +500 per cent. and despair as -500 per cent. he makes some epoch-making discoveries. Thus newly married couples appear at 200 Euphor-units whereas couples unhappy to the point of considering divorce fall to zero and below. Applying the instrument to individuals, Hart finds that a young man in love is above the average but the magnitude of the number of his Euphor-units depends on whether he receives a letter from his fiancée, whereas another young man whose mother is dying appears well below the average. Well, indeed, may Isaac Newton turn in his grave!

Perhaps the world will only realize the idolatrous nature of its worship now that, like the Juggernaut of old, its god science, incarnate in the instruments of modern war, destroys its cities and lays bare its countryside on a scale which makes the wars of pre-scientific ages look like Sunday-school parties.

In the meantime we have to reckon with the fact that the distinguishing feature of the contemporary university is that, compared with its equivalent in other cultures—the Greek academies, the Chinese schools for the future *literati*, and the medieval universities of Christendom and Islam—it models its thinking on science. John Dewey tells us⁶⁵ that "for the educated man to-day, the final arbiter of all questions of fact, existence and intellectual assent . . . is scientific method," for, "there is but one sure road of access to truth—the road of patient, co-operative inquiry operating by means of observation, experiment, record and controlled reflection." Each subject in the university curriculum takes the

natural sciences as its model, and so we hear of "history as a science," and "scientific" literary criticism. A research organization of Harvard University even issues a learned tome under the courageous title,⁶⁶ *How to Work with People: Scientific Method of Securing Co-operation*. Teachers of economics and politics suffer from an infatuation which knows no bounds. Thus Lionel Robbins, in his preface to the English translation of Knut Wicksell's *Lectures on Political Economy*,⁶⁷ confidently asserts:

I know no single work better suited to the needs of any natural scientist who wishes to get a general view of what theoretical economics is about, and to what extent it is scientifically respectable.

The snake-like fascination which the natural sciences have for economists is by no means limited to members of the "pure" theory school like Robbins. His methodological arch-enemy, Wesley Mitchell, tells us that he developed his quantitative descriptive method in economics because of his early conviction that "there seemed to be one way of making real progress, slow, very slow, but tolerably sure. That was the way of natural science."⁶⁸ It is not too harsh to say that Mitchell was unconsciously speaking for other economists when he significantly added, "I really knew nothing of science and had enormous respect for its achievement."

In other branches of social theory there is the same veneration for science. Thus in politics, a thinker, with the wide diplomatic experience of Viscount Bryce, plaintively warns his readers that although they must "cherish no vain hopes of introducing the certitude or the authority of science into politics," nevertheless, political science "is an experimental science, for though it cannot try experiments it can study them and note the results. It is a progressive science, for every year's experience adds not only to our materials but to our comprehension of the laws that govern human society."⁶⁹

Similarly, F. H. Giddings set the fashion for sociology when he cried in 1909:

⁶⁶ By Sumner Harwood (Cambridge, Mass., 1940).

⁶⁷ P. xix (New York, 1934).

⁶⁸ In his letter to J. M. Clark and reproduced (p. 678) in the appendix to Clark's article *Wesley C. Mitchell's Contribution to the Theory of Business Cycles* in *Methods in Social Science*, edited by S. A. Rice (Chicago, 1931).

⁶⁹ In the article *The Relations of Political Science to History and to Practice* in *American Political Science Review*, p. 10, Vol. III (Baltimore, 1909).

We need men not afraid to work; who will get busy the adding machine and the logarithms and give us "exact studies," such as we get from the psychological laboratories. Sociology can be made an exact, quantitative science if we can get industrious men interested in it.⁷⁰

A social scientist as little prone to over-emphasize the resemblance between the social sciences and the natural sciences as Pitirim Sorokin is so much under the influence of the prevalent fashion that he draws his metaphors from the natural sciences with little regard for logical consistence. Thus he concludes the description of his course on "Social Dynamics" at Harvard, with the sentence, "As a whole the course attempts to be a *physiology* of human society." (Italics mine. A. S. N.)

In education itself we get the same passion to be scientific. Thus the then President of the University of Washington, Henry Suzzallo, in a laudatory preface to *Scientific Method in Education*,⁷¹ welcomes the fact that "the usual empirical and speculative thinking of teachers has lost its dominance, its place being taken by reports and discussions based upon inquiries made in a rigid scientific spirit and pursued by the accurate modes of modern science."⁷²

It is, however, in the sphere of what has come to be called sex-education that the most extravagant claims are made for education if only it will be "scientific." It is argued that if only the younger generation can be brought up to view sex in the calm, dispassionate and objective mood of the scientist, then for the first time in history man will be able to rid himself of the "un-natural," "unheathly" and "shameful" attitude, and solve all the problems caused thereby. In parenthesis one can admit that logically speaking the argument⁷³ is quite sound; but it is useless for the simple reason that man in the past never has, that those in the present who speak thus never do, and that therefore we have no reason to

⁷⁰ *American Journal of Sociology*, Vol. 15, p. 196.

⁷¹ By William C. Trow (Cambridge, Mass., 1925).

⁷² *Ibid.*, p. ix. An English writer, R. B. Cattell, calmly informs us that "Logically, education is an applied branch of the pure science of psychology" (*Human Affairs*, London, 1938, p. 141).

⁷³ For an excellent example of what is practically, if not formally, such a tautological argument see Read-Bain in the *American Sociological Review*, where he writes (Vol. 5, p. 660, 1940): "The ideal of treating sex impersonally, factually and realistically cannot be attained until the anatomy, physiology and hygiene of the reproductive system is taught and thought about as matter of factly as all other similar data."

I do not of course wish to suggest for one moment that we should ignore what man has learned over the last century in his attempts to study sex, marriage and the family from a scientific point of view.

believe that man in the future ever will, regard sex as objectively and impartially as he regards chemical affinity or spatial relations.

So deep is the veneration for science and scientific methods of thinking that philosophy and theology anxiously stake claims within certain aspects of human experience which they can study scientifically. In such an atmosphere philosophy in its classical sense, as the attempt to encompass in one systematic scheme "the whole choir of heaven and furniture of earth," finds itself an alien in a foreign land. Younger teachers of philosophy, therefore, have lost their self-confidence and have rejected traditional metaphysics in favour of the barren creed of "logical positivism." In their hands, philosophy has sought to justify the ways of man to the great god science by confessing that the metaphysical pursuit is the most profound error which the human mind can make and by promising never to do it again. In return for this self-abasement it has been allowed to find in the analysis of the meaning of words and the use of language a field within which, to use Kant's phrase, "it can follow the sure course of a science."

Theology, too, beginning with Schleiermacher, hastened to toe the line by "showing scientifically what faith is."⁷⁴ It claimed freedom from both metaphysics and history and insisted on its right, like any other science, to interpret its own specific subject matter in terms of its own unique categories. Thus Walter Horton can correctly attribute to thinkers like D. C. Macintosh and H. N. Wieman "the tendency to regard God provisionally at least, not as a Being behind and apart from the world of experience, but rather as a Being revealed in human experience, a Dependable Factor in it which can be isolated by scientific analysis just as one isolates chemical elements or bacteria or vitamins."⁷⁵ D. C. Macintosh goes so far as to believe that theological thought can only become more accurate in seeking to describe God's Way with man when it utilizes pictorial pseudo-mathematical formulæ like

RRA (ve) C I P → ap C I P (= Sanctification, "Growth in Grace")
 DFR.RRA (ve) C I P → ap C I P (= Sanctification, "Growth in Grace")

⁷⁴ *The Christian Faith: A System of Dogmatics* by T. Häering (London, E.T., 1915), Vol. I, p. 103. See the whole section for a consideration of Schleiermacher and Kant as representing the turning point of modern theology.

⁷⁵ *The Christian Faith: A System of Dogmatics* (New York, 1922), p. 27.

where DFR = a divinely functioning reality;

RRA = the right religious adjustment (on man's part) or on condition of the right religious adjustment, i.e., spiritual aspiration, concentration of attention upon the religious Object, self-surrender to that divine being, an appropriating faith, willed responsiveness, and persistence in the same;

ve = for a volitional effect, i.e., an effect in moral conduct and character;

. = on condition of;

→ = conditions a tendency towards;

ap = answer to prayer, in the sense of a desirable effect dependably realizable on condition of the "right" religious adjustment;

C = comprehensive, or when made comprehensive;

P = persistent, or when made persistent;

I = intensive or when made sufficiently intensive.⁷⁶

Thus God, as the creator and the ground of the existence of all objects, is treated as an object whose existence can be inferred and whose nature analysed by the methods of empirical science! Some English modernist theologians are so intoxicated by the prestige of the natural sciences that they go even further than the American empiricists and take their data as well as the method of theology holus-bolus from the natural sciences. Thus E. W. Barnes, the Bishop of Birmingham, states⁷⁷ that "the right starting point for theology is to examine the conception of the world as known to science," while F. R. Tennant spends two massive volumes⁷⁸ attempting to deduce the conclusion that God exists, after proving that the specific witness of religion and morality has nothing logically speaking to do with the question.

Thus, throughout the whole realm of human knowledge, from literary criticism to theological speculation, there is a well-nigh unrestrained adoration at the shrine of "science" as the model of virtue. Let us then consider its history, for a study of pedigree is one sure method of indicating the stuff of which idols are made.

⁷⁶ See *The Problem of Religious Knowledge* (New York, 1941), Ch. XII, pp. 202-4.

⁷⁷ Quoted with approval by W. R. Inge. (See *Science Progress*, Vol. 29, p. 730.)

⁷⁸ *Philosophical Theology* (Cambridge, 1928).

(II)

THE RISE OF SCIENTIFIC INDIVIDUALISM

"A study of the history of opinion is a necessary preliminary to the emancipation of the mind."

J. M. KEYNES.

SEVERAL writers of eminence, notably A. N. Whitehead and Max Weber, have emphasized the fact that in the history of culture the emergence of the scientific movement is peculiar to Western civilization. It is not that the capacity for profound thought or patient observation has been absent elsewhere.¹ The astrologers of Babylon in the days of Nebuchadnezzar, like the Aztec priests in pre-Columbian Mexico, made a series of stellar observations, which were hardly inferior to those of Tycho Brahe in the sixteenth century, and in the light of which they were able to predict eclipses accurately. As early as 4241 B.C. the Egyptians had fixed the calendar at 365 days. Their skill in dyeing and smelting in the time of the Pharaohs indicates the wide range of their factual knowledge in chemistry and metallurgy, whilst the pyramids, dating from the thirtieth century B.C., show their grasp of the principles of mechanics. On the other side of the world the Chinese had discovered the properties of gunpowder centuries before its inventor in Europe, Roger Bacon, was born. The Pythagoreans, who fled to Italy from Greece before the advancing Persians in the sixth century B.C., discovered the arithmetical relation between the length of a stretched string and the pitch of the musical note it gives when struck. Two centuries later another Greek, Euclid, writing in Egypt, produced his *Elements of Geometry*, and for two thousand years his work provided the unchallenged model of mathematical proof. The unique feature of modern science in Western Europe is that if 1543, the date of the publication of Copernicus' *On the Revolutions of the Celestial Orbs* and Vesalius' *Fabric of the Human Body*, is regarded as the year of its

¹ The modern use of the word, science, to indicate "a branch of study which is concerned . . . with observed facts systematically classified and more or less colligated by being brought under general laws, and which includes trustworthy methods for the discovery of new truth within its own domain" (*A New English Dictionary on Historical Principles*, Vol. VIII, p. 221, Oxford, 1914), is little more than two hundred years old. It was first used by Watt in 1725 in his *Logic II*, ii, para. 9 (*ibid.*).

birth, then, within three short centuries—John Dalton died in 1843—there came into existence a movement which gathered within itself all that was known of the natural world and developed it to an extent which is credible only because it has actually happened.

The question naturally occurs: What was the concomitance of circumstances which enabled Western Europe in the middle years of the sixteenth century to give birth to a movement of such profound significance in the history of man? There is no better starting point in trying to answer this question than Whitehead's chapter on *The Origins of Modern Science*.²

Whitehead's main contention is that the most striking feature of the modern scientific outlook, as it was revealed at its birth in the sixteenth century, was the "union of passionate interest in the detailed facts with equal devotion to abstract generalization." Hence he rightly sees the problem as being: "Why did there emerge at the close of the Middle Ages the instinctive faith that there is an Order of Nature which can be traced in every detailed occurrence?" He maintains that the origin of this conviction that every particular event can be correlated with its antecedents in a fashion which exemplifies general principles, lay in the long dominance of European thought by the Scholastic tradition. He goes on to argue that the particular element in Scholastic thought which produced this faith was the idea that God possessed both the personal energy of Jehovah and the rationality of a Greek philosopher. In other words, Whitehead finds the intellectual sources of the scientific outlook in the development, under the influence of Greek rationalism, of the Judaic conception of a living God. He adds that certain sociological considerations also contributed toward the rapid development of the scientific movement: Roman law established in the Western mind the ideal that an authority ought to be both lawful and law-enforcing and, in addition, exhibit a rationally adjusted system of organization; the art and learning of Constantinople acted both directly and indirectly as a spur to culture in the West and prevented it from being fettered by static and traditional ways of thought; and the interest of the Benedictine monasteries in agriculture, as an alliance between science and technology, kept "learning in contact with stubborn and irreducible facts."³ Such, according to Whitehead—to use his own metaphor—was the seed and the soil from

which modern science grew. To him factors such as the invention of printing, the increase in wealth of the Italian cities, and the taking of Constantinople, were but fertilizers.

Although Whitehead's thesis has been often quoted uncritically by writers on behalf of religious propaganda, it has in the main been rejected by serious thinkers. Morris Ginsberg,⁴ for example, suggests that Buddhistic metaphysics rather than Scholastic philosophy would be considered, *prima facie*, more sympathetic to the notion of law in nature. There are two replies to such a criticism. The first—given by Whitehead himself—is that the conceptions of the relations between man and the world, current in Asia, did not encourage the same confidence in the scrutability of nature as was encouraged by the theology of medieval Europe. Whitehead does not argue that this confidence was logically justified even on the basis of that theology; his concern is simply to show how it actually arose. The second reply—the basis of which will be seen more clearly when we come to show how Whitehead's thesis should be modified—is that Buddhism, like Hinduism out of which it grew, encourages a contemplative attitude toward the natural world and so makes impossible that reliance on experiment without which science cannot exist. Basic to Buddha's teaching is an insistence on the value of reason and truth. However, favourable though this may have been to the emergence of science, other factors, absent from Buddhism, were necessary. Moreover, other elements actively prevented the growth of a scientific temper. Such was Buddha's teaching that personal existence is transitory and vain and that the attainment of spiritual growth involves self-annihilation and the rejection of individuality. Even more so was this true of Buddha's rejection of the material world as a fit object for man's contemplation. Thus, although Buddha's ethical teaching, expressed in his moving words, "all tears are salt, all blood is red," could lead to the growth of the art of healing as recorded for posterity in the works of Atreya and Suseuta, the rest of his teaching rendered impossible the development of the basic sciences of physics and chemistry.

Ginsberg's second criticism is that

\ the notion of a necessary natural order is more likely to have arisen by way of a reaction to that of a personal God ruling by the fiat of His will than as an unconscious and natural derivative of it.⁵

This criticism ignores the fact that although, according to the Scholastics, God was personal, yet His ways were as rational as any Greek philosopher would have wished them to be, and hence could be discovered by man and reduced to intelligible formulation. Thus Copernicus could proclaim that his task as a scientist was to think God's thoughts after Him.

Another critic, Abraham Wolf,⁶ also maintains that Whitehead was fundamentally mistaken in seeing any connection between the scholastic *Weltanschauung* and the growth of the scientific temper. Against Whitehead's contention that science was organically related to the rationalistic outlook of medieval thought, Wolf argues that the reasoning of the Scholastic thinkers was always kept within the bounds of premises based on authority. They never attempted to exercise, nor permitted others to exercise, reason in such a fashion that it aimed at embracing the whole of human experience unrestricted by the boundaries imposed by traditional dogmas. Modern science, on the other hand, argues Wolf, was based on a return to the implicit reliance on natural knowledge which characterized the ancient world. The appeal to experiment was largely prompted by the naturalistic attitude as exemplified in and encouraged by the recovered literature of pagan antiquity in contrast with the supernaturalistic attitude of the Schoolmen. That is why, continues Wolf, science is universal, whereas the Churches are not, since science imposes no arbitrary restrictions on the scope of reasoning, whereas the Churches usually confined it within the arbitrary boundaries of their several creeds and dogmas. Wolf describes the contrast, just indicated, in another way, by urging that the naturalistic view expects regularity in Nature but the supernaturalistic view is prepared to find miracle and magic in natural phenomena. He then goes on to consider other differences between the outlook of modern science and that of medieval thought. These differences, he argues, arose from the fact that Scholastic thought is based on one set of Greek ideas, whereas that of the pioneers of modern science is based on another. To use his own words:

The Scholastics were strongly addicted to the kind of explanation to which Socrates and Plato had given vogue. It consisted in the discovery of the ends or purposes which things served, the indication of what they were good for. . . . Medieval thought ran riot in the invention of fanciful things which ends were alleged to serve. The ends imagined were usually human ends. This kind of

⁶ In *History of Science, Technology and Philosophy in the 16th and 17th Centuries* (London, 1935).

teleological explanation thus tended to encourage the homocentric prejudices of the Middle Ages. Everything was conceived as having been intended to be designated to serve some human need. . . . Modern science started by rejecting and still rejects, as far as possible, teleological explanation. It embraced the method of explanation advocated by Democritus and the other atomists, explanation by reference to the causes or conditions which produce things, their efficient, and not their final, causes.⁷

Thus Wolf's position can be summed up by saying that the early scientists, by breaking away from the supernatural philosophy of the Scholastics, based on Aristotelianism, and letting facts revealed by experiment be the arbiter, thereby returned to the Pythagorean tradition in Greek thought which based itself on a naturalist philosophy. The Scholastics were obsessed with teleological explanations in terms of human ends and purposes. This anthropocentric attitude of mind was rejected by the early scientists of the sixteenth century who gave up the attempt to answer questions of "why" in favour of questions of "how."

Wolf's theory, however, fails, as also does that of Whitehead, to account for the emergence of that feature in the scientific outlook—the appeal to experiment—which distinguishes it both from Scholasticism and from the whole of Greek thought. To suggest, with Wolf, that reliance on experiment by the early scientists originated in a return to the mental attitude of Pythagoras or Democritus, is to misunderstand entirely the difference between the typically Greek attitude of mind and that of the modern scientific movement. Wolf's dismissal of Aristotle as an example of a scientist in the modern sense of the term, is equally applicable to Pythagoras and Democritus, both of whom were dominated by the speculative attitude of the typical metaphysician.

In so far as Hellenistic thought ever approached what the modern mind calls scientific method it was inevitably infected by its exaggerated trust in deductive reasoning. In Greek scientific thought as a whole it was considered that the only value of induction was as a necessary preliminary to true science which was deductive and must therefore be cast in terms of syllogistic logic. But syllogistic logic is almost useless in experimental science where not formal proof from accepted premises but discovery of new facts is the aim. Moreover, Pythagoras, Democritus, Plato and

⁷ *Loc. cit.*, p. 5. In this quotation Wolf can hardly mean "homocentric"; this word, according to *A New English Dictionary* (Oxford, 1901), Vol. V, Part I, p. 1356, is an adjective which means "Having the same centre." The word Wolf apparently has in mind is "anthropocentric" and I have used this adjective in my summary of Wolf's position.

Aristotle alike deprecated any appeal to experiment on the ground that it was vulgar. The Greek ideal of science was essentially intellectualist. The goal of the Greek mind was the contemplation of reality as an intelligible order. The practical results of science, therefore, were of secondary importance; in fact, to the typical Greek thinker the application of science to mechanical ends was a mark of social inferiority and intellectual immaturity, since the end of science was not to do but to know. The structure of geometry, built upon allegedly self-evident propositions, was regarded as exhibiting the model of all true thinking. Hence even Archimedes, the only real experimental scientist of the Hellenic age, was so much intoxicated by the deductive approach that he sought to model his *On Plane Equilibrium*⁸ on Euclid's *Elements of Geometry* by trying to exhibit the basic ideas of his work as self-evident axioms, where as in point of fact they were empirically derived.

The Greek attitude toward manual work was even more devastating in preventing the growth of science, as we understand it to-day, since it ruled out experiment as not worthy of free men. For the same reason the plastic arts had a struggle before they were socially respectable, and for generations this sphere of artistic endeavour was viewed as a pursuit fit only for slaves. Thus Aristotle writes of the mechanical arts in his *Politics*:

It is therefore evident that we shall have to teach our children such useful knowledge as is indispensable for them, but it is equally clear that all useful knowledge is not appropriate for education. There is a distinction between liberal and illiberal pursuits, and it is manifest that only such knowledge as does not make the learner mechanical (vulgar) should form a part of education. By mechanical pursuits we should understand all arts and studies that make the body, soul, or intellect of free men unserviceable for the use and exercise of virtue. This is the reason why we call mechanical such arts as produce an inferior condition of the body, and all wage-earning occupations. They allow the mind no leisure and degrade it to a lower level. There are even some liberal branches of knowledge, the acquisition of which up to a certain point is not unworthy of freemen, but which, if studied with undue intensiveness or minuteness, are open to the charge of being injurious in the manner described above. The object with which we engage in the arts or study them, also makes a great difference. If it be for our own sakes or that of our friends, or to produce goodness, they are not illiberal, while a man engaged in these very same pursuits to please strangers would in many instances be regarded as following the occupations of a slave or a serf.

⁸ Pp. 189-220 of his *Works* translated by Sir Thomas L. Heath (Cambridge, 1897). See also Archimedes' treatise *On Method*, translated by the same writer under the title, *The Method of Archimedes* (Cambridge, 1907).

A man whose attitude to the spread of knowledge was moulded by such a view of the use of his hands would have been quite out of place in the discussions of the Royal Society of London. Bishop Thomas Sprat, the first historian of the Royal Society, describes how the original members (of whom "the farr greater number are *gentlemen*, free and unconfin'd") sought out new recruits:

They diligently search out, and join to them, all extraordinary men, though but of ordinary Trades. And that they are likely to continue this comprehensive temper hereafter, I will shew by one Instance: and it is the recommendation which the *King* himself was pleased to make, of the judicious Author of *the Observations on the Bills of Mortality*: In whose Election, it was so farr from being a prejudice, that he was a Shop-keeper of *London*; that His Majesty gave this particular charge to His Society, that if they found any more such Tradesmen, they should be sure to admit them all, without any more ado. From hence it may be concluded, what is their inclination towards the manual Arts; by the carefull regard which their *Founder*, and *Patron*, has engag'd them to have, for all sorts of *Mechanick Artists*.⁹

It was not that such artisans were recruited to perform the manual work involved in the experiments. On the contrary, each member manipulated his own apparatus. In the minutes of its meeting on September 10, 1662, it is recorded that:

It was order'd, at the next meeting Experiments should be made with wires of severall matters of ye same size, silver, copper, iron, etc., to see what weight will break them; the curatour is Mr. Greene.

Dr. Goddard made an experiment concerning the force that presseth the aire into lesse dimensions; and it was found, that twelve ounces did contract $1/24$ part of Aire. The quantity of Aire is wanting.

My Lord Broucker was desired to send his Glasse to Dr. Goddard, to make further experiments about the force of pressing the aire into less dimensions.

Dr. Wren was put in mind to prosecute Mr. Rook's observations concerning the motions of the Satellites of Jupiter.

Dr. Charleton read an Essay of his, concerning the velocity of sounds, direct and reflexe, and was desired to prosecute this matter; and to bring his discourse again next day to bee enter'd.

Mr. Evelyn's Experiment was brought in of an animal engrafting, and in particular of making cock spurs grow on a cock's head.

Dr. Goddard made the Experiment to show how much aire a man's ~~lungs~~ may hold, by sucking up water into a separate glasse after the lungs have been well emptied of Aire. Severall persons of the Society trying it, some suck ~~aits~~ in one suction about three pintes of water, one six, another eight pinte ~~cup~~ three quarters, etc. Here was observed the variety of whistles or tones, ^{woi} ^{is} ^{ha} ye water made at the several hights, in falling out of the glasse again. ^{pp}

It might be argued that the advances which the Greeks made in astronomy show that they were not entirely ignorant of the need for experiment. But this is not an argument against the above estimate of the Greek attitude toward science. Actually it is one in its favour, since passive observation is not the same thing as active experiment. Logically it is impossible to distinguish between experiment and observation, but the psychological difference between the two attitudes is substantial and it is with this that we are here concerned. The difference between the divergent mental attitudes of observation and experiment is plainly related to the practical differences between the two methods. The former involves no manual control of the objects under examination, whereas the latter does. Hence astronomy can be cited as an example of an observational science and chemistry as an experimental science. For this reason the Greeks developed astronomy but ignored chemistry, a science which, as every schoolboy knows, involves the possibility of dirty hands as the price of knowledge.

The strength of Wolf's criticism of Whitehead is that he sees clearly that modern science was the product of a revolt against the medieval outlook. This is not to suggest that Whitehead was unaware of this fact. Indeed, he specifically refers to it as "a sensible reaction to the rationalistic orgy of the Middle Ages." What he fails to do is to examine the question why the revolt took place and what was its nature. Wolf's answer is that

the medieval lack of interest in natural phenomena and disregard of individual judgment had their roots in the domination of a supernatural outlook, an other-worldly mentality. The earth was of little interest in comparison with heaven, the present life was at best a preparation for the life hereafter.¹⁰

But to find, as does Wolf, the sources of the revolution whereby the present life occupied the centre of man's picture, simply in a return to the naturalism of the materialist tradition of Democritus, is inadequate, for the reason that none of the early scientists, Kepler or Galileo, for example, were naturalistic in outlook. Wolf really had the true answer at hand when he mentions¹¹ the fact that the scientific movement flourished (although it did not originate) in Reformation countries like England and Holland. Thomas Sprat maintained that although "the seeds of it were sown in King Edward VI's and Queen Elizabeth's time" yet the society itself was the product of the liberty of thought encouraged by the Reformation.

¹⁰ *Loc. cit.*, p. 5.

¹¹ *Ibid.*, p. 9.

Two centuries before Galileo's epoch-making experiments, Roger Bacon had pointed out that the fundamental obstacle to the growth of man's knowledge of the natural world was an intellectual dependence on authority, which carried with it the refusal to experiment. He found from his own experience that it was useless for isolated individuals to set their faces against the authority of the Scholastic world view. A movement which could enlist widespread support for a revolt against traditional authority was essential. As J. G. Crowther has remarked in another connection,

while men of genius could always find a track, the conversion of the track into a smooth highway of progress could be accomplished only by the tramping of a large body of followers.¹²

It was Protestantism which, being a religious movement in a religious age, could challenge Scholasticism successfully, both in the ecclesiastical and in the intellectual spheres. There is an interesting recognition by Milton in his pamphlet, *Areopagitica*, of the difference between a typically Reformation country like England and a country like Italy where the Reforming movement failed. Inspired by a visit to Galileo about 1638, Milton wrote:¹³

I could recount what I have seen and heard in other countries, where this kind of inquisition tyrannizes; when I have sat among their learned men, (for that honour I had,) and been counted happy to be born in such a place of philosophic freedom, as they supposed England was, while themselves did nothing but bemoan the servile condition into which learning amongst them was brought; that this was it which had damped the glory of Italian wits; that nothing had been there written now these many years but flattery and fustian. There it was that I found and visited the famous Galileo, grown old, a prisoner to the Inquisition, for thinking in Astronomy otherwise than the Franciscan and Dominican licencers thought.

In countries influenced by the Protestant Reformation there was produced a mass movement of men prepared to question traditional authority and willing to accept revolutionary ideas as the intellectual basis for investigating the world of nature, and that is why scientists of the Reformation countries were able to accomplish what neither Roger Bacon nor Leonardo da Vinci had been able to do. Thereby Protestantism made its first contribution to the emergence of modern experimental science, for it is indeed a short step from Luther's contention, that no man can give to

¹² *The Social Relations of Science* (London, 1941).

¹³ *Loc. cit.* (London, 1644, and replica, London, 1927), p. 24.

another man the assurance of salvation, to the motto of the Royal Society: "*Nullius in verba.*"¹⁴

Moreover, the intellectual basis for experimental investigation was unconsciously provided by the Protestant movement. This factor constitutes the second contribution which the Reformation made toward the possibility of experimental science. The essential character of medieval theology against which Protestantism revolted was pride in man's achievement. Experiment to the Schoolmen was unnecessary: man knew the truth, for example, about falling bodies; his only concern was to work out the implications of what he already knew. The stars, being heavenly bodies, were known to be perfect. Hence, so they argued, to look at them was a waste of time. Any direct frontal attack on this intellectual self-satisfaction was bound to fail. It represented the stronghold of the whole medieval world. Man was believed to be the centre of the universe and the world of physical nature, like all else, was teleologically subordinate to man, to his finite purposes and to his eternal destiny, and therefore, man's existence, with his hopes and fears, was the dominant fact above all others. Thus the physical world was conceived to exist for man's sake. Contrary to what is usually believed, this is the clearest illustration we have that the medieval world lived under little sense of God's dominion and that consequently it had little sense of a Truth transcending its own truth or of a Righteousness transcending its own righteousness. Such an outlook could be challenged only at its centre, as Luther saw quite clearly when he posited the issue of faith versus works. As John Macmurray once pointed out¹⁵—Luther's conversion "put an end to man's preoccupation with himself and as a result he found himself no longer interested in himself, no longer the centre of his own world." That change in Luther's life is itself a symbol of the change from the medieval world to the modern world. It was a change from man's interest in man to man's interest in the world. By doing this in the sphere of man's inner life Luther laid the spiritual foundations for Galileo and his successors to perform its equivalent in the sphere of man's physical life when they relegated the earth from its exalted position as the centre of all physical existence to that of a second-class planet going round a third-rate sun in an odd corner of the stellar universe.

¹⁴ "Not bound by the words of any man."

¹⁵ In a conversation with the writer. See also his introduction to *Some Makers of the Modern Spirit*, ed. by J. Macmurray (London, 1933).

The resulting revolution in method is brilliantly expressed by a typical Reformation thinker, Francis Bacon, in the words:

The error of the Schoolmen proceeded from a too great reverence, and a kind of adoration of the mind and understanding of man; by means whereof, men have withdrawn themselves too much from the contemplation of nature, and the observations of experience, and have tumbled up and down in their own reason and conceit. . . . For the wit and mind of man, if it work upon matter, which is the contemplation of the creatures of God, worketh always to the stuff and is limited thereby; but if it work upon itself, as the spider worketh his web, then it is endless, and brings forth indeed cobwebs of learning, admirable for fineness of thread and work, but of no substance or profit.¹⁶

This rejection of deductive argument from alleged self-evident premises was foundational to the work of the early scientific societies of the countries on the Atlantic seaboard. The Royal Society appointed a salaried experimentalist, Robert Hooke, whose attitude can be aptly summed up in his own words:

The truth is, the Science of Nature has been already too long made only a work of the "Brain" and the "Fancy": It is now high time that it should return to the plainness and soundness of observations on material and obvious things.¹⁷

The appeal to experiment, therefore, is really based upon the acceptance of man's ignorance and a consequent willingness to refer questions to objective fact. The behaviour appropriate to such an attitude of mind is action in the shape of experiment. It is this acceptance of the primacy of action over speculation which shows that the scientific revolt was based upon a "Judaic" rather than a "Greek" attitude toward the relation between knowing and doing. For to the Jew, knowledge always had relevance to practice. As Robertson Smith points out,

When the prophets speak of knowledge of God they always mean a practical knowledge of the laws and principles of His government.¹⁸

Whereas to the Greek the highest values in knowing were revealed in contemplation.¹⁹

It was Protestantism, therefore, which, by returning to a Judaic

¹⁶ Quoted by J. H. Robinson in his contribution to *John Dewey: The Man and His Philosophy* (Cambridge, Mass., 1930), p. 158.

¹⁷ In the preface to *Micrographia*, 1665.

¹⁸ *Religion of the Semites* (London, 1927), p. 23.

¹⁹ This attitude towards knowledge is still defended by those thinkers for whom Greece rather than Palestine is their intellectual home, e.g., the eminent French medievalist, Étienne Gilson, writes of the necessity of maintaining "science in its proper order, which is that of contemplation, and prevent it from sinking into that of practical application." P. 22, *Christianity and Philosophy* (New York and London, 1939).

rather than Greek attitude, provided, psychologically if not logically, the scientific movement with its methodology. Even J. M. Robertson, a historian who would not be expected to over-emphasize the part played by religious influences in the growth of the scientific movement, admits²⁰ that Protestantism "set up outside its own sphere some new movements of rational doubt which must have counted for much in the succeeding period." Hence, he continues,

we find . . . in the more systematic and more cautious argumentation of the abler Protestants of the seventeenth century a measure of general rationalism more favourable alike to natural science and to Biblical and ethical criticism than had been the older environment of authority and tradition.

The third contribution which Protestantism unconsciously made to the progress of the scientific movement was through the high significance it gave to manual labour. A recent historian of ancient science, Benjamin Farrington, emphasizes a previous point urged in this chapter, namely that²¹ in Greece the aversion to physical toil must have operated to the detriment of science, since the experimental scientist cannot dispense with the use of his hands. Farrington illustrates his argument by pointing out that anatomy stood still from Galen to Vesalius. Vesalius himself explained this intellectual stagnation as due to cessation of dissection by the intellectuals who as free men had a contempt for manual work. To quote his own words:

It was when the more fashionable doctors in Italy, in imitation of the old Romans, despising the work of the hand, began to delegate to slaves the manual attentions they deemed necessary for their patients . . . that the art of medicine went to ruin. . . . When the whole conduct of manual operations was entrusted to barbers, not only did physicians lose the true knowledge of the viscera, but the practice of dissection soon died out, doubtless for the reason that the doctors did not attempt to operate, while those to whom the manual skill was resigned were too ignorant to read the writings of the teachers of anatomy.²²

By its doctrine of "the calling" Protestantism encouraged an attitude of mind whereby physical labour or work could be construed as a vocation on earth which met with God's approval. This conviction had two results. It furnished that optimism about life on earth without which new experiments cannot be tried with hope and confidence in their outcome. More important still, it was

²⁰ *A History of Free Thought* (London, 2nd edition), pp. 509 ff.

²¹ *Science in Antiquity* (London, 1936), p. 228.

²² *Ibid.*, p. 229.

this element within Protestantism which led it to set its face against the Greek view, which had been carried over into medieval thought, that physical labour was too vulgar an occupation for the intellectual.

Speaking of the noble art of warfare, Plato²³ had haughtily dismissed the argument that "in pitching a camp, or taking up a position or closing or extending the lines of an army, or any other military manœuvre, whether in actual battle or on a march, it will make all the difference whether a general is or is not a geometer," with the words that "for that purpose a very little of either geometry or calculation will be enough."²⁴ Contrast this attitude with that of Galileo, who expressed on the first page of his shattering *Dialogues Concerning Two New Sciences* his indebtedness to the skilled artisans of the arsenal at Venice, with the words:

Conference with them has often helped me in the investigation of certain effects including not only those which are striking but also those which are recondite and almost incredible.²⁵

It might be argued that the building of medieval cathedrals like Chartres in France or Durham in England shows that there was a definite place in the medieval outlook for the consecration of manual toil. The Abbot Haimon of S. Pierre-sur-Dive in a letter to his brethren of Tutbury, in Staffordshire, a small priory dependent on S. Pierre, graphically describes how in the building of Chartres Cathedral all the inhabitants, rich and poor, high and low, formed themselves into "associations" to drag, in silence and humility, the huge blocks of stone from the quarries and the timber from the forest. No one was allowed to toil in this work until he had been to confession and sought reconciliation with his enemies. To quote from his own words:

Who has ever seen or who heard in all the ages of the past that kings, princes and lords, mighty in their generation, swollen with riches and honours, that men and women, I say, of noble birth have bowed their haughty necks to the yoke and harnessed themselves to carts like beasts of burden, and drawn them, laden with wine, corn, oil, stone, wood and other things needful for the maintenance of life or the construction of the church, even to the doors of the

²³ *Republic*, Book VII, 525. See *Dialogues of Plato*, translated by Benjamin Jowett (Oxford, 1892), Vol. III, p. 228.

²⁴ Contrary to what is often believed, Plato never referred to God as a geometer; the expression, ὁ θεὸς ἄν γεωμετρῇ is not Platonic. I am indebted to Dean G. S. Brett for pointing out that "the topic is discussed in Plutarch—*Convivial Disputations*—where it is stated, with some suggestion that it is good Platonism but not actually Platonic: it does not appear in the works of Plato so far as can be discovered."

²⁵ P. 1 of English translation by Henry Crew and Alfonso de Salvio (New York, 1914).

asylum of Christ? But what is even more astonishing is that, although sometimes a thousand or more of men and women are attached to one cart—so vast is the mass, so heavy the machine, so weighty the load—yet so deep a silence reigns that not a voice, not a whisper can be heard. And when there is a halt called on the way there is no sound save that of the confession of sins and the suppliant prayer to God for pardon. There, whilst the priests are preaching peace, all hatred is lulled to sleep and quarrels are banished, debts forgiven, and the union of hearts re-established. But if anyone is so hardened that he cannot bring himself to forgive his enemies or to beg the pious admonitions of the priests, then his offering is withdrawn from the common stock as unclean, and he himself is separated, with much shame and ignominy, from the society of the holy people. Forward they press, unchecked by rivers, unhindered by mountains. You might think that they were children of Israel crossing Jordan, and for them, as for the children of Israel, miracles are wrought. But when they come to the church, they set their waggons in a circle so as to form, as it were, a spiritual camp, and all the following night the watch is kept by the whole army with hymns and songs of praise.²⁶

However, this activity does not indicate the consecration of common work but rather the performing of a particular religious exercise. Robert Lowry Calhoun designates with great clearness the change which Protestantism wrought:

Against the regnant monastic ideal of the Medieval Church, which held up the lives of celibate clergy and religious orders as more pleasing to God than the lives of ordinary folk engaged in doing the ordinary work of the world, Luther and Calvin followed and overpassed the lead of certain mystics and medieval preachers in applying to these common pursuits the impressive term, vocation, that meant "divine calling."²⁷

Calhoun admits that Thomas of Aquinas stressed the value of the individual's labour as contributive to an organic whole and that thereby he effected a significant advance in the understanding of the value of work. But, argues Calhoun, although Thomistic social theory gives clear "recognition of positive worth in the providentially ordered array of occupations which serve not merely the higher orders but the common weal," yet

Saint Thomas never applied to the doing of *opus manuale* (secular labour in its widest sense) the distinctive terms *vocare*, *vocatio*; nor did he ever grant to those engaged in such work a level (*gradus*) of life comparable to that of the orders set apart to engage in *opera spiritualia*.²⁸

The transition in thought whereby ordinary human labour came to be regarded as a divine vocation is aptly illustrated by a curious philological fact, first pointed out by Max Weber.²⁹

²⁶ Quoted by Cecil Headlam in *The Story of Chartres* (London, 1902), p. 116.

²⁷ *God and the Common Life* (New York, 1935), p. 17.

²⁸ *Loc. cit.*, p. 254.

²⁹ See *The Protestant Ethic* (London, 1904).

Luther gave to the word *Beruf* ("calling") a connotation which before his time it had not possessed. Indeed, there is no exact equivalent to it either in the literature of classical antiquity or of medieval learning.³⁰ Luther used the word in this sense in his translation of Eccclus. xi. 21. In the English version we normally have "Trust in the Lord and abide in thy toil," "toil" being the accurate translation of the Greek *πόνος*. However, Luther used "*Beruf*," and by it he meant not "toil" or "work," as such, but labour in the secular world, viewed as a God-appointed task. On one occasion he said, "God through you milks the cow and does the most servile works." Thus to Luther the proper performance of a man's secular work is a religious obligation.

The Protestant doctrine of justification by faith, as it originated in Luther, meant that man was to be reconciled to God in this world and not merely in heaven. Thus religion was secularized so that, as Luther put it, the shoemaker should shoe the sole of the Pope as religiously as the Pope should pray for the soul of the shoemaker. This attitude of mind is well expressed by Kepler in a prayer which he used in concluding one of his astronomical works:

Behold I have here completed a work of my calling with as much of intellectual strength as Thou hast granted me. I have declared the praise of Thy works to the men who will read the evidence of it, so far as my finite spirit can comprehend them in their infinity.³¹

It was an attitude of mind which became so much a part of the warp and woof of Protestant thinking that before the end of the eighteenth century, Benjamin Franklin could remark in his famous letter *To Those Who Would Remove to America*, "The people have a saying, that God Almighty is himself a Mechanic."³²

Herein we see why it was Protestantism and not the Renaissance which made the scientific movement possible. The Renaissance was essentially a literary movement and a return to the study of the old manuscripts could no more have produced the sociological

³⁰ See article by Kemper Fullerton, *Calvinism and Capitalism*, in the *Harvard Theological Review*, Vol. XXI, p. 169.

³¹ Quoted by Charles Singer in his article in *Science, Religion and Reality*, p. 141, ed. by Joseph Needham (London, 1925). Although Kepler was not technically a "Protestant" he was very much under the influence of its thought and entertained many ideas which from the Roman Catholic standpoint were heretical.

³² Quoted by G. S. Counts in his *The Prospects of American Democracy* (New York, 1932, p. 32), from *The Works of Benjamin Franklin*, ed. by Jared Sparks (Boston, 1836),

and psychological conditions for the emergence of experimental science in sixteenth-century Europe than the literary revivals for the study of the classics in China could have made the Orient, rather than Western Europe, the birthplace of modern science. A most interesting confirmation of this view of the relation between the Renaissance and the Reformation in their impact on the growth of science is to be found by comparing the state of experimental science in the two ancient universities of England. Oxford is the university which is the more closely identified with the literary study of the classics and Cambridge the university which is more closely associated with the Reformation: it was Oxford which produced Newman but Cambridge produced Simeon. Cambridge has always had a brilliant scientific reputation from the days of Isaac Newton. To mention the Cavendish laboratory and the names of Clerk Maxwell, Lord Kelvin, J. J. Thomson, Ernest Rutherford and the Braggs is to quote a galaxy of scientific talent that no other single university in the world can equal, whereas Oxford, to mention only one science, organic chemistry, has had to import from other universities W. H. Perkins of the last generation and Robert Robinson in this generation, although it has never had any difficulty in filling with the most eminent scholars from its own ranks its chairs in, say, classics and history.

It might be argued, in answer to the importance here attributed to Protestantism, that the Reformers were not more friendly toward the scientific attitude of mind than the Church against which they rebelled. It could be mentioned that the first martyr of science, Servetus, was burned at the stake by Calvin, and that the early scientific movement was strongest in Roman Catholic countries. But this reply rests upon a misunderstanding very much akin to the criticism that the Reformers were not more friendly to the spirit of capitalism than the Roman Church, a criticism which is often levelled against Max Weber's well-known thesis on the relation between Protestantism and capitalism. The connection between Protestantism and the rise of science, on the one hand,³³

³³ I am not aware of any investigation by Max Weber on this question; the only explicit reference to it in Weber's translated work is in his *General Economic History* (London, 1927), p. 368, where he points out that in his judgment the specific contribution of Protestantism to the progress of science was to have placed it at the service of technology and economics, whilst in his *Protestant Ethic and the Spirit of Capitalism* (London, 1930), he gives several hints that during the Puritan era scientific progress was aided by the religious temper of the age. For further references to Weber on this question see the illuminating article by Robert K. Merton *Protestantism, Pietism and Science in the Sociological Review*, Vol. 28, pp. 1 ff. (London, 1936).

and Protestantism and the emergence of capitalism, on the other hand, is not to be conceived of as being a conscious process. It was simply that in both cases Protestantism removed the dams of medieval restriction, and both Calvin and Luther and their supporters were quite incapable of checking the course of the subsequent torrent which made possible the era of liberal individualism, that "*Geist*" which in religion produced the innumerable Protestant sects, in thought the scientific movement, in politics democracy and in economics capitalism.

The connection between the rise of capitalism and that of the scientific movement is for our immediate purpose the most important. In contrast to the traditional technique of pre-capitalist and pre-scientific societies, both capitalism and science rest on the rational prediction of the future, whether of the course of business or the sequence of change in a chemical, physical or biological system, in deciding between alternative courses of action. In a "traditionalist" society, like that of medieval Europe or pre-revolutionary Russia, the sowing and reaping of crops, the spinning and weaving of textiles and the mining and smelting of ores were conducted in accordance with the long-acquired traditions, customs, and codes of race or caste or family or neighbourhood, and not by a rational process of choosing the most appropriate means to achieve the desired end. In contrast, early science as a means for discovering new knowledge and early capitalism as an economic system both broke with tradition in their estimate of what rules should govern the use of mechanical equipment as a field for rational technique. For example, neither the early capitalists nor the early scientists *discovered* the mechanical principles which are exhibited in a clock, that indispensable feature of the scientific laboratory, the business office or the factory. The revolutionary idea basic both to science and capitalism was that if a machine was more efficient then it should be used. In E. F. M. Durbin's words,

a medieval society looks upon machines as *toys*. A capitalist society looks upon them as instruments of production. What has changed is not knowledge, but a habit of thought.³⁴

The break with traditionalism is further exhibited in that both science and capitalism are based on an unlimited acquisitiveness. As we have seen, the medieval scholar, believing that only that

³⁴ *The Politics of Democratic Socialism* (London, 1940), p. 79.

which is already known can be learned, rested self-satisfied in the knowledge he possessed, whereas the scientist of the modern era has an unquenchable thirst for "facts and more facts." Similarly in the field of business enterprise, the achievement of financial gain ceased being, as it was for the medieval mind, a peril to the soul, even if a somewhat natural frailty, and became instead a divine ordinance and the very foundation of society. John Wesley expressed this mood in a sermon when he exhorted his hearers to "get all you can, save all you can and give all you can." In poetry the mood of the restless acquiring temper was expressed for Victorian England in Rossetti's lines:

From this wave-washed mound
Unto the furthest flood-brim look with me;
Then reach on with thy thought till it be drowned.
Miles and miles distant, though the grey line be,
And though thy soul sail leagues and leagues beyond,
Still, leagues beyond those leagues, there is more sea.

Moreover, in both scientific research and capitalistic enterprise this unrestrained acquisition is in accordance with a rational plan whereby immediate resources are to be expended in accordance with a purpose. In capitalism it appears as saving for the purposes of capital accumulation, while in science it appears as experiment in the utilization of present materials not for immediate satisfaction but for the light thrown on the properties of all materials which are of that type and which will appear in future experience. Furthermore, this plan, in either case, is based upon an optimistic trust in a policy of *laissez-faire*. The capitalist has assumed that the harmony of the whole will be the outcome of the struggle between competing firms. Similarly the scientist unquestionably believes that the knowledge gained in one science will ultimately be consistent with that obtained in another science. For him the word "knowledge" really has no plural.

But the most important resemblance between science and capitalism lies in the fact that they both represent a break-away from ethical considerations. As Tawney points out,³⁵ the fundamental difference between medieval and modern economic thought consists in the fact that, whereas the latter normally refers to economic expediency, however it may be interpreted, for the justification of any particular action, policy, or system of organization, the former starts from the position that there is a moral authority to which con-

³⁵ *Religion and the Rise of Capitalism* (London, 1929), p. 39.

siderations of economic expediency must be subordinated. Similarly, E. A. Burtt points out that the idea of law as "a rationally discoverable principle of unity behind processes of change" could not have been "foundational to the thinking of large masses of men had it not proved possible, in the great medieval era of Anselm to Aquinas . . . to combine what was essential in it with the Hebrew concept of divine law."³⁸ He goes on to say that "crippling complications still infected the picture and had to be purged before the whole faith of science clearly emerged." The purging needed, adds Burtt, lay in the fact that "the Christian conception of God was that of a being morally perfect as well as rational" and that "as long as the interpretation of the world was attempted in theological terms the presupposition could hardly be avoided that everything must happen for the sake of some good." Hence, concludes Burtt, science could not develop until it had set free its thinking from the assumption that everything that happened took place for the sake of some good.

We now see that the Protestant movement, in expressing a revolutionary attitude toward human knowledge, furnished the foundations for the scientific world view. It was able to do this by taking its stand on the Jewish attitude toward nature as good. Expressed in the doctrine of the goodness of creation, this attitude was a direct protest against the Greek contempt for the temporal world which had its origin in a preference for the world of pure and rational being, a preference which reappeared as Christian theology developed, until in Scholasticism the Biblical view of creation was almost submerged. It was only when Protestantism had re-emphasized the Jewish elements in the Christian tradition, as over against the predominating Greek elements in the medieval synthesis, that the interest in nature, without which experimental science was impossible, was able to emerge.

We can now see why Western Europe during the modern era has been the only civilization to give birth to "science." In no other culture has there been the dual interest in particular facts as illustrations of general knowledge and a willingness to fill in the gaps in human knowledge by appealing to the results of manual labour in the shape of experiment. This conclusion can be thrown into clearer light by taking instances, by way of contrast, of civilizations which had no scientific movement. A modern Chinese

³⁸ *Religion in an Age of Science* (London, 1929), p. 42.

philosopher solves⁸⁷ the question of why China, for example, in spite of the accomplishments of her ancient culture, had no science, by pointing out that in terms of her own traditional standards of value she needed none. There are, in fact, some astonishing resemblances between the traditional Chinese attitude and that of medieval Europe to the natural world, knowledge and manual labour. The scholars of the Ming era (1368-1644) had the same kind of rational-deductive approach to knowledge which was exemplified in Thomas Aquinas. Just as medieval Europe used reason to draw out the truth from propositions written on the pages of Aristotle so the Chinese scholars worked upon the writings of Confucius. Speaking of two Chinese rulers, as late as the beginning of the nineteenth century, an English scholar, E. R. Hughes, writes:⁸⁸

K'ang Hsi and Ch'ien Lung with their shrewd, calculating minds saw that the way to preserve their inheritance was through generous treatment of the scholar class. Heterodox opinions were as much an object of suspicion as sedition, and although some notable movements in learned study took place, the relation of learning to life and society and its needs was seriously affected. Too many of the nation's spiritual trustees became the slaves of imperial policy. The majority of the *literati* fell to the temptation of sycophancy, and when they became officials found safety for their minds in elegant literary trifling.

E. R. Hughes adds⁸⁹ that younger Chinese scholars are now saying of their predecessors,

Here . . . is where we Chinese have made our great mistake during the last 800 years. We came to the point where we saw that knowledge consisted in "the examination of things" (*k'e wu*), but we construed things to be the things of the mind and the social order, and we have more and more descended to looking for the laws of the universe in old books.

Similarly, as in medieval Europe so in China, the use of the hands in manual labour was considered an inelegance impossible for the true scholar; learned men did not build ships or make guns, and so the earliest Chinese schools which borrowed from Western learning were simply technical schools for the training of skilled workmen. Even after the Republican revolution this attitude persisted to such an extent that few Chinese teachers of science could be persuaded to perform experiments. Still less would they allow

⁸⁷ Yulan Feng in article *Why China Has No Science* in *International Journal of Ethics* for April, 1922.

students to handle the apparatus. They were permitted, on occasion, to see experiments performed since thereby they could follow more easily the illustrations on the printed page of the precious text-book. As late as 1919 the examiner of a graduating class in a university of good standing found that the examinees could hardly distinguish sandstone from slate. On making inquiries he found that field expeditions were undertaken only once a year, since it was not considered proper to get dirty hands by picking up geological specimens on more frequent occasions. One further resemblance between ancient China and medieval Europe was that neither civilization had a middle class, and a middle class society is the only society known to history which cares for "rights" and yet can allow criticism of itself. The inferences drawn by Marxist writers notwithstanding, the fact remains that modern experimental science has only emerged in a middle-class society based juridically not on status but on contract, which has accepted toleration of belief to the point of accepting atheism and which has regarded not the landowner, nor the scholar, nor the ecclesiastic, nor the warrior but the trader and the industrialist as the pillars of society.

So, too, in ancient Egypt, Babylon and Rome, the absence of, as a Calvinist would say, "a high doctrine of manual labour" made the growth of experimental science impossible. J. G. Crowther⁴⁰ quotes from an ancient document of about 1200 B.C. where an Egyptian scholar gives this advice to his pupils:

"Put writing in your heart that you may protect yourself from hard labour of any kind and be a magistrate of high repute" for the metal worker at his task at the mouth of the furnace has "fingers like a crocodile," and "stinks worse than fish spawn" whilst "the weaver in a workshop is worse off than a woman" since he squats "with his knees to his belly and does not taste fresh air."

During its golden age, from A.D. 900 to 1100, Arabic culture showed all the signs of giving birth to experimental science but the early promise was not fulfilled. It is true that many circumstances—political and military in character—combined to bring to an abortive end the particular development of the legacy of Greek science to which the Islamic world fell heir. However, more potent influences lay in the internal deficiencies of Arabic science and culture. Religious rules prohibited the dissection of the human

body or living animals; thereby Galen's anatomical and physiological errors went uncorrected. The deference of Muslim scholars toward Greek thought was not a suitable psychological preparation for the necessary rebellion against the Hellenistic attitude toward the natural world, which, as we have seen, was essential if science, in the sense which we know it to-day, was to be born.

This exaggerated respect for the written words of the Greek Fathers is aptly illustrated by the following words of Al-Jahiz of Basra:

Did we not possess the books of the ancients in which their wonderful wisdom is immortalized and in which the manifold lessons of history are so dealt with that the past lives before our eyes, did we not have access to the riches of their experience which would otherwise have been barred to us, our share in Wisdom would be immeasurably smaller and our means of attaining a true perspective most meagre.⁴¹

Another Arabic writer, Al-Birumi, went even further and wrote:

We ought to confine ourselves to what the ancients have dealt with and endeavour to perfect what can be perfected.⁴²

Thus, Arabic science failed to develop for precisely the same reasons that Greek scientific thought did not come to maturity. Indeed, Paracelsus, whose work marks the transition from alchemy to chemistry, early in the sixteenth century linked together the names of the two greatest encyclopædists in ancient Greece and medieval Islam, Galen and Avicenna, when he warned his students not to trust the written word but to return to the observation of nature. To emphasize his break with tradition and to symbolize his stand as an investigator, untrammelled by veneration for the written word, he commenced his lecture courses in Basle by burning ceremoniously before his class the works of the offending authors, murmuring as he did so the words:

*"Experimenta et ratio auctorum loco mihi suffragantur!"*⁴³

Babylon might have developed a scientific movement because there it was not beneath the dignity of scholars to look at the sky. However, they lacked any real grasp of general principle as

⁴¹ Quoted by Alfred Guillaume in his article *Philosophy and Theology* in *The Legacy of Islam*, ed. by Sir Thomas Arnold and Alfred Guillaume (Oxford, 1931), p. 239.

⁴² Carra de Vaux in his article *Astronomy* in *Le Monde de l'Islam*, p. 111.

exemplifying the relation between particular facts; there was no Kepler to juggle with the figures of their Tycho Brahes. Moreover, to look at the stars, in the judgment of Babylonian scholars, was one thing, to handle physical objects was another. Hence their mathematicians used 3 as the value of π since they left the measure of the diameter and the circumference of a circle—and indeed the calculation—to slaves. Alternatively they may have been so much under the influence of a Babylonian equivalent to the Pythagorean view of number that they had to believe that the ratio in question must be a perfect number.

No civilization was less likely to produce science than that of ancient Rome and yet no imperial power, as its lines of communication grew longer, had more need of it. It was sufficient for the imperious Roman that the enslaved Greek might indulge—when he had the time—in the luxury of abstract thought about the natural world but, as Virgil urged, only war and government were occupations proper to citizens of Rome. Even to Marcus Aurelius “those that profess mechanic arts” are “in some respects no better than mere idiots.”⁴⁴

The analysis of the development of the scientific movement, given above, shows that it is based upon the following convictions or postulates:

(I) That there is in nature an ordered regularity such that apparently isolated facts are also instances of general laws.

(II) That these facts are to be obtained from deliberate and conscious experiment or observation;⁴⁵ neither experiment nor observation is just trial and error; experiment in particular can be defined as trial and error according to a plan.

(III) That these facts are to be derived by a process of abstraction such that for each particular science only certain aspects of the subject under examination are deemed relevant.

These postulates, as the outcome of the attempt to formulate explicitly the presuppositions of scientific investigation, I shall call the doctrines of science.

The historical development of the natural sciences indicates how this third postulate has been applied. Mechanics was the first

⁴⁴ In the sixth book of his *Meditations*, paragraph 32. See Everyman edition (London, 1906), p. 65.

⁴⁵ The essential difference between observation and experiment is that the former precludes and the latter includes some kind of control over the subject under investigation.

branch of science to be developed. Its basis was that any properties of matter other than mass and motion could be ignored and this was true whether the objects under investigation were planets or cannon balls. The next stage came with the development of chemistry and physics as scientists began to turn their attention to the problems of combustion and expansion when it became necessary to investigate properties of matter other than mass and velocity. These properties were consequently subsumed under the terms physical and chemical. The distinction between these two types of properties of matter was first appreciated when experiment showed that all material changes could be divided into two well-defined classes, the criterion of classification being changes in the properties of a body under certain definite influences. It was noticed that some properties, such as temperature, shape and position, could be changed arbitrarily one by one, while others could not be changed without changing other properties as well; in fact, in the latter case the change was found to be so great that the original material, as such, disappeared and a different material was formed. The former properties are now termed accidental properties, the study of which concerns the science of physics in its traditional sense, and the latter are termed specific properties, the study of these being the concern of chemistry. The two classes of changes referred to above then are physical and chemical changes, respectively. The theoretical distinction between physics and chemistry, corresponding to this empirical line of demarcation between the two sciences, is that chemistry deals with the molecule and physics deals with the atom.

This process of bringing into consideration data of a higher order of complexity does not mean that previous laws are no longer assumed to apply. It is simply that a chemical account of a particular process includes the physical, just as the physical in turn includes a mechanical account of that process.

Biology developed as the science which found itself, in its various branches—zoology, botany, embryology and the like—unable, like physics or chemistry, to be indifferent to certain other characteristics of the material world. These characteristics were those of living bodies “which, while behaving in some ways like matter, being, for example, visible or tangible, nevertheless reveal differences which are the more striking the more rigidly physics and chemistry delineate the material world as essentially indifferent in all its changes to the later outcome of such

changes."⁴⁶ This distinction between living and non-living matter rests on the conception that the temporal states of the living organism are related to each other in a purposive fashion such that, to use Stout's phrase, living creatures exhibit persistence with varied effort; whereas in the case of a physical body that is not so.

It is sometimes argued that the development of the quantum theory shows that physics, as well as biology, must introduce the purposive principle. Whitehead⁴⁷ states, for example, that "biology is the study of the larger organisms; whereas physics is the study of smaller organisms." However, the plain fact of scientists' experience is that all physicists and chemists who are dealing with the quantum theory are competing with each other to eliminate the gap in knowledge which renders such a line of argument plausible, whereas even "mechanistic" biologists are content nowadays to turn their attention to more profitable pursuits than the attempt to solve the old mechanist-vitalistic controversy. Thus a biochemist is little prone to accept anything like a vitalistic superstition as J. B. S. Haldane writes:⁴⁸ "In practice the physiologist, although he may be and should be mechanistic in his details, is never mechanistic about the organism as a whole," and "even if one is a rigid mechanist in theory, in practice one needs another principle. One finds that the organism somehow regulates itself."⁴⁹

It is now generally recognized that the relations between physics, chemistry and biology can be expressed by saying that the province of chemistry is the molecule. If the chemist goes back to the atom he becomes a physicist, whereas if he goes forward to the cell he becomes a biologist. If he perches himself on the boundary between the molecule and the atom he is a physical chemist. If he precariously balances himself on the edge between chemistry and biology he is a biochemist.

The question which science has been facing ever since psychology sought admittance to its halls, is whether the introduction of the purposive element is possible on the strictly scientific plane as soon as the process of abstraction involves the appearance of

⁴⁶ Article, *Comparative Psychology* by L. T. Hobhouse, in *Encyclopædia Britannica* (14th Edition). Hence, as John Macmurray puts it (*Interpreting the Universe*, London, 1933, p. 109), "life never is at any moment. It is always becoming."

⁴⁷ *Science and the Modern World*, p. 129.

⁴⁸ *Marxist Philosophy and the Sciences* (London, 1938), p. 115.

⁴⁹ *Ibid.*, pp. 113-4.

human purposes and valuations among the data for investigation. To introduce human purposes is to break with the traditional scientific scheme since, as we have seen, modern science arose (to use Aristotelian language) when interpretation of phenomena in terms of final causes was deliberately eschewed in favour of description in terms of efficient causes. In more modern parlance modern science developed by ignoring questions of "Why?" and concentrating on questions of "How?" Thereby has arisen the notion that science deals with means and not with ends. Epistemologically this notion has been expressed in terms of the separation between science and philosophy. But this logical bifurcation of reality which for several centuries has been part of the scientist's creed has never been rigorously practised. At various stages in the intellectual history of Western civilization attempts have been made either to exhibit the scientific account of the Universe within the context of a complete philosophical scheme or to explain the Universe in scientific terms. In the nineteenth century the rapid expansion of man's control over nature furnished the socio-psychological roots of the self-confidence of those who, like Ernest Heinrich Haeckel in Germany and John Tyndall in Great Britain, claimed that the categories of physics and chemistry were adequate for the description of the whole universe. These thinkers failed lamentably to defend their thesis against its critics, and its own epitaph was written by Ludwig Büchner when in controversy he was forced to make his famous remark that the brain secretes thought as the liver secretes bile. To such depths of absurdity were the scientific materialists reduced in their attempts to justify their conviction that it was possible to give an exhaustive account of both the knower and the known, to use Whitehead's apt phrase, in terms of material entities moving through space and enduring through time.

The inevitable outcome was that the pendulum swung to the other extreme so that the philosophy of science which replaced mechanistic materialism took as its starting point the absolute separation between science and metaphysics. As developed by Ernst Mach in Austria, Paul Duhem in France and Karl Pearson in England, it based itself on a phenomenalist theory of knowledge and maintained that since the primary data of science are sense-impressions, science has no concern with what may or may not lie behind sensed phenomena. Its intellectual self-abasement was so thoroughgoing that in what is its most complete expression, E. W.

Hobson's Gifford Lectures, *The Domain of Natural Science*,⁵⁰ it is stated that "logical incompatibility between theories relating to different domains affords no ground for denial of their scientific truth," whilst a distinguished American physicist, K. K. Darrow, advised his readers⁵¹ "to adopt the practice of regarding atom models as creations of the imagination." This was going too far and many scientists with a philosophical bent rejected such tame claims for their enterprise and advocated a realist view of the nature of scientific knowledge. Max Planck asserted emphatically that "atoms, little as we know of their actual properties, are as real as heavenly bodies, or as earthly bodies around us, and when I say that a hydrogen atom weighs 1.6×10^{-24} grms., the statement involves as much learning as the statement that the moon weighs 7×10^{22} grms.,"⁵² while A. N. Whitehead, in his Turner lectures at Cambridge in 1919, implored his fellow scientists to "do away with this elaborate machinery of a conceptual nature which consists of assertions about things which do not exist in order to convey truths about things which do exist."⁵³

The controversy between the realists and the phenomenologists is not yet over, for the latter, now calling themselves logical positivists, have returned to the attack with vehemence, and, strengthened by the addition of Bertrand Russell, Whitehead's former collaborator, they show a self-confidence (if not a unity) which matches that of Tyndall and Büchner.

Moreover, in all these controversies, from Haeckel to Carnap, there has been fundamental agreement about what I have previously called⁵⁴ in this chapter the doctrines of science. The differences have emerged only in interpreting their significance for the wider problems of philosophy. However, these doctrines, as the logical bases of a living movement, that of modern science, have been embedded in a tradition which has furnished "the mental outlook" or "the climate of opinion," or what I can only call "the dogma"⁵⁵ of the scientific movement, as the set of unconscious presuppositions in terms of which activity based on the doctrines of science has functioned.

We have seen that science developed in a bourgeois society, based on a capitalist economy, and so this body of dogma which

⁵⁰ Cambridge, 1922.

⁵¹ In *Contemporary Physics* (New York, 1926).

⁵² See English translation: *Survey of Physics* (London, 1926), p. 36.

⁵³ *The Concept of Nature* (Cambridge, 1920), p. 44.

⁵⁴ See p. 72.

⁵⁵ See above, Chapter I, p. 37.

I shall sometimes call rational individualism, and sometimes call scientific individualism, and sometimes call liberal rationalism,⁵⁶ stands in the same relation to the doctrines of orthodox economic theory as it does to the doctrines of experimental science.⁵⁷ It has been, so to say, part of the air modern man has breathed and, to continue the metaphor, that air has been rendered by developments within the scientific movement itself and, much more so, the economic and political structure of the modern world, somewhat stifling. To some account of the effect of these developments we must now turn.

⁵⁶ The use of these diverse phrases to indicate the same "dogma" is inevitable; no single phrase can be adequate. All that we can do is, by the judicious combination of different nouns and adjectives, to point out the salient features of what is, to mix the metaphor, an organic whole.

⁵⁷ Thus what I call "rational individualism" is much wider than—although it includes—the "assumption of scientific materialism" which A. N. Whitehead has so vehemently attacked. He describes it as the belief that "presupposes the ultimate fact of an irreducible brute matter, or material, spread throughout space in a flux of configurations. In itself such a material is senseless, valueless, purposeless. It just does what it does do, following a fixed routine imposed by external relations which do not spring from the nature of its being." (*Science and the Modern World*, 1927, p. 22.)

(III)

THE DECLINE OF SCIENTIFIC INDIVIDUALISM

*"Our little systems have their day;
They have their day and cease to be."*

ALFRED TENNYSON.

THE use of the word, "dogma," to describe the body of presuppositions which indicates the climate of opinion for an era and especially, in view of its theological associations, to do so in dealing with the foundations of science is one likely to create misunderstanding. To the mind of the typical "modern" the questions will naturally occur: "Does not dogma stand for a proposition which cannot be questioned?" and "Is not the dogmatic attitude poles apart from that of the scientists who claims the right to test the validity of any statement which claims to be true?" To substantiate the implied assertions behind these rhetorical questions he would argue that surely it must be taken for granted that the scientist has no presuppositions which fetter his thinking, for to be scientific is to be objective and impartial; it is to derive what one believes from reason and experiment and not from *a priori* theological or meta-physical speculation.

However, to argue this simply illustrates the plea I am making. The use of the phrase, "taken for granted," as describing the scientist or his procedure explains why, in the absence of a better alternative, I have used the word, "dogma." It indicates *what we take for granted*, the initial premises of our argument or the basis for our activity whether in life or in the laboratory. The word "dogmatic" has achieved its present unsavoury connotation precisely because it indicates how people—whether Buddhists or Christians, butchers or bakers, rationalists or mystics, Marxists or Fascists, scientists or poets—behave when what they have taken for granted is denied or even questioned. Moreover, to assail dogma with logical argument cannot in the nature of things seriously affect the tenacity of belief with which a man or a movement holds his or its dogma, for the simple reason that it is dogma from which all argument begins and therefore argument about dogma (in this sense) must inevitably, beg the question at issue.

Dogmas are only given up when they became inadequate not in logic but in life. Their logical adequacy can never be in doubt since on their own terms they even decide what shall be accepted as logical.

The first dogma of the scientific movement which we must examine¹ is that science is without assumptions or presuppositions. Philosophers have always known better ever since Descartes knew he had to begin with "*cogito*" before he could add "*ergo sum*" and this has been the case even when they have believed with Shadworth Harrison² that the "philosophical problem is to find the means of philosophizing without making assumptions." Hence philosophers have rightly regarded the principle of presuppositionlessness as the greatest presupposition of all.³ A few thinkers, however, have tried to maintain that epistemology alone can validly claim to be presuppositionless since it can be defined as the study of the basic presuppositions of all knowledge. They have not travelled very far since they have left unanswered the question: "How does the epistemologist ever get 'outside' the sphere of his own self-consciousness?"

The one clear conclusion from all these attempts is that the nearest the philosopher can approach to his ideal of "presuppositionlessness" is to admit only those presuppositions without which the undertaking itself would be devoid of meaning. Now if natural scientists—or to be more accurate the typical liberal rationalist mind which draws its support from natural science—would also so conceive the meaning of "being without presuppositions" all would be well. On this showing it could be agreed that science rests on convictions which are continuously being justified by experience but which are in actuality logically prior to any attempt to prove them either by experiment or by inference. The trust in experiment is one such conviction. It cannot be proved by rational argument, as Hume showed once and for all; and it cannot be proved by experiment since that is what is at issue.

Unfortunately, most liberal rationalists are too naïve to perceive

¹ I should emphasize again the fact that since it is a dogma that we are examining it is impossible to split it up into its component parts, for a dogma is in the nature of things a *Gestalt*. The most we can do is to examine the dogma from different angles, realizing that to deal with the part is *ipso facto* to deal with the whole.

² In a letter to William James. See *The Thought and Character of William James* by R. B. Perry (Boston, 1935), Vol. I, p. 623.

³ See the article *The Ideal of a Presuppositionless Philosophy* by the editor, Marvin Farber, in *Philosophical Essays in Memory of Edmund Husserl* (Cambridge, Mass., 1940), and cf. C. I. Lewis' *Mind and the World Order* (New York, 1940).

that science rests on judgments the validity of which must be accepted by the scientist before he can either experiment or think. Philosophically sophisticated scientists, however, like the biologist J. H. Woodger, are quite aware of this fact. In his impressive book *Biological Principles*⁴ he has gathered together a list of the fundamental judgments upon which all our natural scientific knowledge rests and which cannot be inferred from anything else. He sets them out as follows:

A. Empirical.

Judgments of Perception, e.g. "This rabbit is white."

B. A priori.

(A priori not in the sense of being known prior to experience but in the sense of being logically independent of experience; "elicited by" experience, but neither provable or disprovable by experience).

1. Not "self-evident" but essential for the possibility of scientific knowledge:
 - a. Belief in a real external world.
 - b. Belief in the trustworthiness of memory.
 - c. Belief in the existence of other selves.
 - d. Belief in some sort of regularity in the external world.
2. Self-evident as well as essential for knowledge.
 - a. Analytic (in the sense that the opposite would be self-contradictory), e.g., 1 foot equals 12 inches (i.e. defining and explicatory judgments).
 - b. Synthetic, e.g. propositions concerning the relations between universals—"black is different from white." "The whole is greater than the part." "If a equals b and b equals c, then a equals c." "If a entails b and a is true, then b is true." (Where a and b are propositions and "a entails b" means "b logically follows from a.")

Some writers would consider this list too long. Thus, writers like the astronomer, H. Dingle,⁵ have claimed that science is possible without the belief in some sort of regularity in the external world. Their position is either that the regularities in Nature, discerned by the scientists, are really self-imposed by the investigator—in other words, they are created by him and not discovered—or, alternatively, that there *may be* regularities in nature and, if so, the scientists *may be* able to discover them and express them in the form of scientific laws. The former seems to be the position which Dingle is defending. That it cannot, however, be maintained is evident if we consider the attitude of the scientists which is: "There are regularities in nature and if I fail to discover them that is not because there is no Order of Nature but owing to

⁴ (London, 1922), p. 202.

⁵ In *Science and Human Experience* (London, 1922).

the intellectual and experimental limitations under which I work." As F. H. Bradley used to insist,

The whole of science takes it for granted that the "not-ourself" is really intelligible; it stands or falls with this assumption.⁶

Thus knowledge in science consists, on the one hand, of certain primary truths and, on the other hand, of the main body of scientific knowledge, expressed in laws and theories, which are erected on the basis of these primary truths.⁷ In so far as a spatial metaphor is at all adequate we can say, that as our scientific knowledge in general increases, our knowledge of these primary truths grows *deeper*, whereas our knowledge of the main body of science grows more *extensive*. A convenient method of distinguishing between these two aspects of knowledge in science is to consider their relation to the passage of time. Further experience (i.e. as time elapses) means the discovery of more facts, a state of affairs which compels the scientist to revise his laws and reconstruct his theories; but the lapse of time cannot have any effect on his trust in the validity of these primary beliefs. This is not to deny that the scientist's trust in the validity of these primary beliefs does not receive continuous support and justification as the result of further experience, but this trust in the mind of the scientist is not something which depends on results for its justification. That such is the case is evident if any scientific investigator cares to indulge in an introspection of his attitude as he works in his laboratory. An example, taken from the experience of the writer, furnishes an illuminating illustration of this view of the matter. A year was spent in a vain attempt to photosynthesize an optically active carbohydrate by searching for an "efficient" catalyst. A constant repetition of negative results failed to suggest to him that he should examine the adequacy of these primary beliefs as the possible source of his failure, or indeed as a necessary antecedent for any scientific investigation. Instead, all his efforts to search for the cause of his lack of success were directed elsewhere, for example,

⁶ *Ethical Studies* (Oxford, 1927), p. 73.

⁷ My use of this term may be misleading since I do not wish to imply that they can be deductively proved or that they are "self-evident" or that they can be known by "intuition." In so far as they can be expressed, they become formulations of what is implied in the total body of scientific knowledge, viewed as a coherent whole.

Students of L. T. Hobhouse will readily perceive the debt which I owe at this point to his *Theory of Knowledge* (London, 1921) and to his *Development and Purpose* (London, 1929). For an excellent résumé of Hobhouse's epistemology see Chapter V of *L. T. Hobhouse; His Life and Work* by J. A. Hobson and Morris Ginsberg, London, 1931.

the "poisoning" of each catalyst used, and a suspicion of the trustworthiness of the results of his co-workers in the laboratory upon whose correctness the success of the method he adopted depended.

To say that the scientist does not rely on results to vindicate his belief in, for example, the principle of the uniformity of nature is not to say that his experience does not lend some measure of justification to his belief in these principles. Indeed, we can say that it is these principles which give meaning to his experience and hence we can say, in the proper meaning of the term, that they are *a priori*.

The second feature of the dogma of liberal rationalism which must be refuted is that of the complete separation of science from philosophy. In its most extreme form—as defended by Comte during the last century and the logical positivists in our own time this separation is inevitable since, so they say, science deals with ascertained facts and deductions therefrom, whereas philosophy is simply a matter of opinion. Among physical scientists the same radical separation is made. Here it is generally maintained—as by W. C. D. Whetham,⁸ that science separated itself from philosophy for its own good at the dawn of the modern era. This is far too simple a view of the matter. Actually what happened was that the early scientific movement gave up the medieval philosophy of nature and its relation to man which it had inherited through St. Thomas Aquinas from Aristotle and it worked out its own philosophy in terms of a fundamental cleavage between man and the physical universe.

On the medieval view, as we have seen in the previous chapter, the natural world was regarded as teleologically subordinate to man and his purposes. The notion that the earth was at the geometrical centre of the universe was the expression of this same conviction in terms of cosmology. It was reflected in epistemology in the fact that the medieval mind was completely unaware of the problem, "How does it come about that the human mind knows anything at all?" Since the world had been made for man it was obvious to the Scholastic thinker that his mind could understand it and hence the use of categories, like matter and form, purpose and function, substance and essence in medieval thought. However, the philosophy behind the dawning scientific movement was symbolized in the emergence of the heliocentric hypothesis whereby the earth became one planet among others. Explanation,

not to say simply description, in terms of cause and effect, replaced final explanation in terms of purpose and function. The sun shone not to bring light and heat to man and to nourish his crops but because certain material bodies had a particular configuration in space and a particular temporal relation to the earth. Man was no longer the being for whom the earth was made but, to use the oft-quoted words of Bertrand Russell, "the product of causes which had no prevision of the end that they were achieving."⁹

In short, modern science, far from cutting itself loose from philosophy, took over—albeit unconsciously—a whole metaphysical system based on the concept of material particles enduring through time and moving through space. This would not have mattered a great deal had not the memories of the struggle with medievalism prompted the scientific movement to tie itself to the naïve notion that philosophy was the villain of the piece, and science the source of light and truth. Thus, in scientific circles, all through the last century and well into this one, "philosophical" became a term of abuse, and "metaphysics" became the supreme heresy. The situation was not made any easier by the superior attitude of professional philosophers. Speaking of their failure to counteract the fallacies of nineteenth-century evolution in his own country, the doyen of English historians of science records that "professed philosophers dwelt securely and apart in scientifically constructed ivory towers, erected in and protected by ancient universities. There they spoke (to each other) in the idiom of Plato. Such missives as they sent down to mortals (if they sent any) were incomprehensible to that considerable majority that did not understand the idiom."¹⁰ Such an indictment loses no truth if it is extended beyond the limits of the British Isles or if it is generalized beyond biology so as to include tendencies within the physical sciences.

This radical separation between science and philosophy served within the field of science as a kind of socio-psychological repression. For a time, undisturbed by the more profound problems of human destiny, men of science were able to make tremendous strides. Gradually, however, like all repressions, it began to have an increasingly inhibiting effect, an effect which soon showed itself in the field of science itself. Thus, in the middle of the last

⁹ In his essay *The Free Man's Worship in Mysticism and Logic* (London, 1918).

century, physics was retarded for years by the refusal of physicists to take seriously Julius Robert Meyers' concept of the mechanical equivalent of heat, for to them Meyers' theory sounded like the speculations of the despised natural philosophers. Curiously enough the painful cost to science of this faithful adherence to Newton's misplaced warning, "Physics, beware of metaphysics," was perceived in the nineteenth century by a writer as little prone to be sympathetic to metaphysics as Engels. Referring to Kant's thesis in his *Allgemeine Naturgeschichte und Theorie des Himmels*¹¹ that the solar system had evolved, Engels pointed out that had scientists paid any attention to Kant's book

they would have drawn from this single discovery of genius by Kant such consequences as would have saved them infinite errors along circuitous paths, and an immense quantity of time and labour expended in a false direction. In Kant's discovery lay the germ of all further progress. If the earth was something which had *become*, then all its present geological, climatic and geographical conditions had become also, its flora and fauna as well, and it must have a history not merely in space, but in time also.¹²

To take another illustration, in this case one nearer to our own day. In 1880, Michelson and Morley educed, in their classical experiments on the velocity of light, certain facts which did not accord with the mode then current of thinking about the meaning of the contemporaneousness of events at different points in space. For more than a quarter of a century, until Einstein launched his special theory of relativity, theoretical physicists struggled vainly with a problem which never would have arisen if they had given a more strict attention to the meaning of the concepts they were using. The necessary revision of Newtonian physics might have been developed much earlier if they had been conversant with the analyses of the nature of space and time which were commonplace among philosophers. Indeed, while it was conventional in scientific circles of the Anglo-Saxon world to dismiss the philosophers' analyses of the ideas of space and time as empty vaporizing, Einstein was laying the foundations for his epoch-making theories by reading the philosophers. He writes:

Kant interested me always but I do not believe that he influenced me greatly—if at all, by way of opposition. But I was impressed by Mach's works and still more by Hume's philosophical works. In the case of Mach the influ-

¹¹ E.T. by W. Hastie under the title *Kant's Cosmogony* (Glasgow, 1900).

ence was not only through his philosophy but also through his critique concerning the fundamentals of physics.¹³

An interesting confirmation of the argument that science has been hampered by this separation from philosophy is the fact that it is easier to teach relativity theory to students of philosophy than to teach it to students whose mental categories have been created by an acceptance of the traditional concepts of Newtonian physics whereby the absolute nature of space and time are taken for granted as the only possible way in which the human mind can deal with the problem of temporal duration and spatial extension.

However, the acceptance of Einstein's theory has not only made it clear to men of science that progress has been retarded by this intellectual self-centeredness whereby metaphysical speculation has been foolishly regarded as "empty vaporizing." It has also shown that the traditional scientific scheme was not only the vehicle for a disguised metaphysic but, in addition, was inadequate for the demands which the internal development of science made upon it. The classical scheme ascribed ultimate reality and therefore causal efficacy to a world of material particles enduring in absolute time and moving through absolute space in terms of mathematically expressed, determined laws. This attack in terms of the relativity theory was by no means the first which had been launched against the traditional scheme. David Hume had riddled it with criticism by showing that the idea of cause and effect (like the belief in induction) as adopted by the fathers of modern science, was logically indefensible.¹⁴ Kant also had rested his whole system on the contention that the world, investigated by science, was only the world of phenomena and not that of ultimate reality.

However, all the attacks from outside the household of the scientific faith had been in vain, for science had always been able to trust in a faith which, if it could not remove the mountains of philosophical criticism, had enabled it to ignore them and, to mix the Biblical allusions, to pass by on the other side. When the faith of science demanded a miracle to sustain its belief it had always been able to work one. That was why the ether was invented even if, when philosophers asked awkward questions about

¹³ In a letter to the author. Cf. Eddington's remark: "it is actually an aid in the search for knowledge to understand the nature of the knowledge we seek." P. 5, *The Philosophy of Physical Science* (Cambridge, 1939).

¹⁴ See in particular Section IV of his *Inquiry Concerning Human Understanding*

it, the scientists had only been able to describe it in Lord Rayleigh's aphorism as the nominative of the verb "to undulate."

However, this faith was not adequate for the iconoclast Einstein, who came on the scene, trailing, not clouds of glory, but the results of the Michelson-Morley experiments on the velocity of light, interpreted in terms of non-Euclidean geometry. One by one the canons of Newtonian orthodoxy were discarded.¹⁵ The result was that no longer could a unique meaning be given either to the mass or the position of a body in space and its existence in time.

Shattering though might be the blows inflicted on the foundations of the classical scientific scheme from those who, like Einstein, busied themselves with the macroscopic aspects of the physical universe, there was more to come. This time it was at the hands of those who, concerning themselves with the microscopic aspect of matter, developed the quantum theory. They brought to an end a process whereby physicists and chemists had been using certain ideas about matter, space and time as signposts in the accumulation of a body of knowledge which was destined, although they were quite unaware of it, to become quite inconsistent with these ideas. The resulting paradox is epitomized in the fact that the process which began with the wave theory of light ended with a wave theory of matter.

Not merely did the quantum theory throw overboard the Newtonian idea that space and time are continuous but, led by Heisenberg, in his famous "Indeterminacy Principle," it has renounced, at least in its nineteenth-century sense, the deterministic presupposition. Put in its simplest form and as expressed by Eddington, this principle states that "an electron may have position or it may have velocity but it cannot in any exact sense have both."¹⁶ Heisenberg has generalized this conclusion by maintaining that

the question whether from a complete knowledge of the past we can predict the future, does not arise because a complete knowledge of the past involves a self-contradiction.¹⁷

¹⁵ For a graphic account of this process, see *The Evolution of Modern Physics*, especially Chapter III, by Albert Einstein and Leopold Infeld (Cambridge, 1938).

¹⁶ *The Nature of the Physical World* (Cambridge, 1928), p. 220.

¹⁷ Quoted by Eddington. *Ibid.*, pp. 228-9. For a lucid survey of the experimental evidence which led to this conclusion see *The New Conceptions of Matter*, Chapter IV, by C. G. Darwin (London, 1931).

Herein we have a perfect symbol of the collapse of the ontology which has been implicit in physical science since the dawn of the modern era: when physicists and chemists begin to discuss their basic problems within the halls of science itself, they find themselves engaged in the disputations of metaphysicians. Thus what was foreshadowed in the nineteenth century, when resort had to be made so often to that half-disguised metaphysical entity, the ether, has now become a nightmare: the scientific account of the world has reduced the scientist to the mood when, with Heisenberg, he is constrained to say, in language radically different from that typical of the rationalism of the "modern" mind, that he "has a kind of faith in the correctness of the new principles rather than a clear understanding of them."¹⁸

One conclusion from the work of the last two decades in mathematical physics is now inescapable. It is that, if by science we mean the establishment of causal connections between phenomena whereby if we are given a knowledge of the past and the present we can predict the future, then we are radically mistaken. Instead, we must replace such an erroneous belief by the notion that scientific investigation is the attempt to correlate phenomena in such a way that one event can be interpreted in terms of and with reference to others and its future predicted in terms of probability.

Such in brief is the state of affairs in contemporary physical science. It is one which is readily recognized by the leading figures in the scientific movement. However, fashions of thought persist as the hidden assumptions of an epoch even when they have outgrown the original purpose for which they were created and, paradoxically enough, science, which began as an anti-rationalist movement, has riveted on to the modern world an exaggerated trust in the power of reasoning, which equals, to use Whitehead's phrase, the rationalistic orgy of the Middle Ages. This trust usually takes the form of arguing that the plight in which the world finds itself is due to the gap between "scientific knowledge" and practical men. Thus H. G. Wells repeatedly turns to the idea¹⁹ that the great scientists of the world ought to get together and produce a world encyclopædia which, if permanently kept up to

¹⁸ *Physical Principles of the Quantum Theory* (Chicago, 1930), p. ix.

¹⁹ See *The Idea of a World Encyclopædia* (London, 1937) and *World Brain* (London, 1938).

date, would make scientific knowledge available to men of affairs. He argues that "we live in a world of unused and misapplied knowledge and skill," for knowledge and thought are ineffective because of

this wide gap between . . . the at present unassembled and unexploited best thought and knowledge in the world, and the ideas and acts not simply of the masses of common people, but of those who direct public affairs, the dictators, the leaders, the politicians, the newspaper directors and the spiritual guides and teachers.²⁰

Wells seems half aware of the religious function which such an encyclopædia would serve for it would "play the role of an undogmatic Bible."²¹ Lest the impression be given that Wells' hopes from such a policy are being exaggerated, we will quote at length and use his own words:

Such an Encyclopædia would play the role of an undogmatic Bible to a world culture. It would do just what our scattered and disoriented intellectual organizations of to-day fall short of doing. It would hold the world together mentally . . . it would bring together into close juxtaposition and under critical scrutiny many apparently conflicting systems of statement. It might act not merely as an assembly of fact and statement, but as an organ of adjustment and adjudication, a clearing house of misunderstandings; it would be deliberately a synthesis, and so act as a flux and a filter for a very great quantity of human misapprehension. It would *compel* men to come to terms with one another.²²

More recently and on the other side of the Atlantic Ocean, similar confusion has been preached by Waldemar B. Kaempffert, the science editor of *The New York Times*. In his Bergen lectures at Yale University he made the true but useless statement that

If 100,000 first-class intellects can think internationally, think in terms of the planet and not of the particular nations to which they belong, there is some hope for the rest of mankind.²³

The above statement is true but then so is the old adage that "if wishes were horses then beggars would ride." The statement is equally useless since we are not taken one millimetre toward the solution of any real problem by expressing, however we may seek to disguise it, nothing more important than the tautology that if the facts were different then the world would be different.

This hidden assumption that a genuine addition to human understanding is achieved by using arguments which contain the

²⁰ *World Brain*, p. 6.

²¹ *Ibid.*, p. 14.

conjunction *if* so as to conceal an impossibility is by no means the monopoly of journalists like Kaempffert or novelists like Wells. It is an assumption which vitiates the thinking of more serious-minded writers. Thus the responsible pages of the *Encyclopædia of the Social Sciences*,²⁴ with an unconscious sense of the appropriate, close its article on *Science* by Benjamin Ginzburg with a perfect example:

Before the advent of science and technology, religion despaired of ameliorating the material conditions of men in this world and preached a compensation in a mythical world to come. Science and technology make it possible—if²⁵ moral and practical development can keep pace—for men to realize the kingdom of God on earth.

To return to Mr. Wells; even the tragic events since the Nazi invasion of Poland have not shaken his faith in his panacea. It is not that he is unaware of the contemporary tragedy for he writes about it with passionate feeling:

The spectacle of evil in the world during the past half-dozen years—the wanton destruction of homes, the ruthless hounding of decent folk into exile, the bombings of open cities, the cold-blooded massacres and mutilations of children and defenceless gentle people, the rapes and filthy humiliations and, above all, the return of deliberate and organized torture, mental torment and fear to a world from which such things had seemed well nigh banished—has come near to breaking my spirit altogether.²⁶

However, the message for mankind, springing from his anguished despair of to-day, is essentially the same as the clarion call sounded forth in his optimism of yesterday. "I repeat my refrain, we need a world brain,"²⁷ and he confidently puts the onus on the members of the younger generation:

The issue upon which I am in doubt is not whether I am right or wrong about the facts I have assembled; it is simply whether you of the new generation can be sufficiently braced in time.

The tragedy of the generation to which Wells belonged is that, although they were perfectly sincere in their beliefs, yet they were completely incapable of seeing how often their arguments, though logical, nevertheless rested upon premises which had no relation to the facts of human society. This was true, not only of popularizers like Wells but of that unique combination of scholarship and business capacity, the late Lord Stamp—chairman of the

²⁴ New York, 1934.

²⁵ Italics mine. A. S. N.

London, Midland and Scottish Railway and a director of the Bank of England. In his Presidential Address²⁸ to the British Association for the Advancement of Science he declared that:

Scientists see very clearly how, *if* politicians were more intelligent, *if* business men were more disinterested and had more social responsibility, *if* Governments were more fearless, far-sighted and flexible, our knowledge could be more fully and quickly used to the great advantage of the standard of life and health—the long lag could be avoided, and we should work for social ends.

He utterly failed to deal with the cardinal problem of what scientists can do when they live in a world where politicians and business men like themselves and indeed everybody else are neither disinterested nor fearless to the extent so vainly desired.

At the same meeting of the British Association Sir Richard Gregory, the eminent editor of the British scientific weekly, *Nature*, was more modest. He did not suggest that scientific methods, applied to the fields of economics and politics, were competent by themselves to solve modern social problems, but he maintained that at any rate they would enable the facts to be ascertained and assembled for consideration free from previous prejudice. Sir Richard seems quite ignorant of the one all-important fact and that is that all political differences reduce themselves on the last analyses to differences about *what the facts are*. It is this ignorance which leads him to attribute to disinterested ignorance what should be ascribed to interested intelligence.

The same fallacy runs through the argument of all those who, with such tragic results, led the democratic countries of Europe to believe that differences between the Nazi régime and the victors in the First World War arose from ignorance of the facts on one or the other or both sides. Thus Lord Allen of Hurtwood urged in his *Peace in Our Time*²⁹ that the League of Nations needed a series of fact-finding commissions to consider grievances, but he paid no attention to the crucial problem arising out of the fact that "fact-finding commissions" would find the facts to be such that grievances would arise out of them, however they were handled.

The hidden assumption underlying the thinking of liberal rationalists, like those just quoted, is that reason is a neutral arbiter well above the strife and to which appeal can be made.

This view of reason has a long history. It was entertained by Thomas Aquinas and it is still an integral part of Roman Catholic epistemology with its contention that God may be known, in the

words of the Vatican Council, "by the natural light of human reason by means of created things." Richard Hooker embraced it explicitly in his famous *Laws of Ecclesiastical Polity*³⁰ when he wrote: "The natural means whereby to judge our doings is the sentence of Reason determining and setting down what is good to be done." It is a vivid commentary on the strange turn that has overtaken the relation between the scientific movement and the rest of human culture that Hooker's book is directed against those who disparage human reason, foremost among whom were the protagonists of the scientific movement in sixteenth-century England.

In fairness to Hooker, it should be added that he never entertained the simplicities of the typical modern liberal rationalist in his view of reason. This is even more true of modern Roman Catholic thinkers like Étienne Gilson and Jacques Maritain who severely qualify orthodox Thomism at this point. The need for such or similar qualifications does not, however, perplex the secular liberal rationalist. His basic error lies in his assumption that reason is always a neutral factor between different systems of knowledge or contending points of view. It is an ironic commentary on man that those human beings who deny the existence of a transcendent God are the first to claim that *their* judgment transcends any sectional viewpoint. As the Old Testament writers well knew, idolatry is never far from atheism.

H. G. Wells fills his writings with unconscious illustrations of this identification of a partial perspective with absolute truth. Thus his

World Encyclopædia will have by its very nature to be what is called liberal. . . . It will have to be guarded editorially and with the utmost jealousy against the incessant invasion of narrowing propaganda. It will have a general flavour of what many people will call scepticism. Myth, however venerated, it must treat as myth and not as a symbolical rendering of some higher truth or any such evasion. Visions and projects and theories it must distinguish from bed-rock fact. It will necessarily press strongly against all sectarian assumptions.³¹

Such a description leaves unanswered many burning questions. Who is to interpret the meaning of "liberal"? Who is to "guard" it against what Marxists, Nazis, and Christians would unite in regarding as the middle-class rationalist, "narrowing propaganda" of Mr. Wells? Who is to be the judge in "pressing against"

³⁰ Book I, Section VIII. See his collected works (London, 1888), Vol. I, p. 99.

³¹ *Loc. cit.*, p. 78.

Wellsian delusions of grandeur or Wellsian sectarian assumptions? The source of Wells' self-confidence is that in his judgment *he* knows how to distinguish "bed-rock facts" from "theories," but nowhere does he give any indication that he has any glimmering of an understanding that there are no "bare" facts since facts are inevitably chosen in accordance with certain ultimate principles. True indeed are Alfred Marshall's words that "the most reckless and treacherous of all theorists is he who professes to let facts and figures speak for themselves."³²

Wells is by no means alone. A graphic illustration of the canonization of his own viewpoint by a man who is young enough to know better is furnished by the Oxford historian, A. L. Rowse, in a review of Maynard Smith's *Pre-Reformation England*. After recognizing the natural desire of Catholic and Protestant historians to write on the Reformation, Rowse naïvely goes on to say that

What one really wants is that the subject should not be dealt with by Churchmen at all. What is required is that it should be treated by the wholly emancipated, by those who are freed from any childish, outgrown ecclesiastical bias either on one side or the other.³³

A historian on the American side of the Atlantic received a fitting rebuke to his implied assumption that to be outside a particular tradition made an unbiased view of controversial questions possible. In conducting the oral examination of a Mormon student who was submitting a Ph.D. thesis on a particular period of Mormon history, the historian asked the student if he, being a Mormon, considered himself sufficiently unprejudiced to write a thesis on Mormon history. The somewhat daring student appositely remarked, "Yes, if you, not a Mormon, consider yourself unprejudiced enough to examine it."

This implicit assumption that the rationalist can transcend all bias and achieve an impartial perspective is not limited to his dicta on religion. He feels the same way about politics. Thus he has no difficulty in rejecting the Nazi or the Marxist philosophy in the name of Reason.³⁴ He fails to see that it is in the name of

³² Quoted, p. 108, in *Memorials of Alfred Marshall*, edited by A. C. Pigou (London, 1935).

³³ *New Statesman and Nation* (London, December 12, 1938).

³⁴ See article by Mortimer J. Adler in *Harper's Magazine* for October, 1940, where (p. 527) he inveighs against the members of the present generation of college students for not believing that democracy "can be *proved* to be intrinsically better than fascism." In fairness to Adler, I should add that his view of reason is not as near to the naïveté of the liberal rationalists as the above quotation indicates.

reason as he understands it. To those who maintain that there is no common rational ground on which the democrat and the Nazi can resolve their theoretical differences he replies, with W. T. Stace,³⁵ that "in that case, our preference for democracy, we shall have to admit, is in the end nothing but an irrational prejudice." This reply rests upon a completely mistaken understanding of the function of reason in human thought and life. Each system, whether Nazi, or Marxist, or liberal, or rationalist, or Protestant, or Catholic, or Hindu, has its own view of reason. Reason, therefore, is not a neutral principle which can be appealed to in favour of one rather than another of the competing systems. An illuminating parallel is that of language. It is impossible to describe a language except in terms of a particular language, for there is no language which is a "neutral."

It is true, of course, that in so far as any single system of belief can be expressed in intelligible terms then it must satisfy the formal demands of "reason" such as internal consistency, just as all languages must satisfy certain fundamental laws of grammar. However, the essential differences between the competing systems lie well outside what little they have in common. All that reason can do is to exhibit the precise area of the conflict between the different systems, not in terms of any universal principle, but in terms of categories drawn from one of them. This point Stace is forced to admit. From his own standpoint he rightly maintains that to affirm that there is common ground between the democratic and totalitarian sets of values "involves asserting that there is discoverable—however deep down and hidden from the sight of most of us it lies—a point from which the two theories begin to diverge, to branch off from one another, a common place of meeting from the ground of which rational argument can proceed." He also sees clearly that

every set of ideals, moral or political, is an outgrowth of some theory—whether explicitly set forth or unconsciously assumed—about *the nature of man*.³⁶

He does not see, however, that the agreement between the democratic and the totalitarian thinker to the effect that their difference finally resolves itself to a disagreement about the value of man is only a *formal* agreement which leaves the *real* issue untouched. That is why Stace can conclude by saying: "Not that we

³⁵ In his preface to *The Destiny of Western Man* (New York, 1942).

³⁶ *Ibid.* pp. ix-x.

shall ever, of course, succeed in convincing our totalitarian opponents by any such argument. They do not appeal to reason any more." The Nazi thinker would reply to Stace, "What you really mean to say is that we don't believe in your liberal-democratic-individualist reason any more." The Marxist would make the same reply except that he would substitute "capitalist-democratic-individualist" for the Nazi's "liberal-democratic-individualist."

An excellent illustration of the fact that in the ultimate sense "neutrality" is impossible, is afforded by the word, "neutrality," as the Nazis understand it. Thus, in an article, *Neutrality and Democracy in the Twentieth Century*,³⁷ the author, E. H. Bockhoff, argues that

neutrality is a democratic conception, based on free speech, free assembly and so on. Democracy, however, is a form of life which is not tolerable to Nazism. On the contrary, not only democracy but all its fruits and consequences are to be regarded as hostile. Indeed, neutrality is almost an absurdity. It can, however, be regarded as something which can be tolerated by Nazism if and when the neutral State refrains from all comment on happenings, institutions and persons of the totalitarian régime. . . . If a country wishes to be regarded as neutral the Nazis demand that the government should forbid any remarks critical to Nazism, for it is fully responsible for every word of every citizen.³⁸

Hitler used exactly this argument in his demand to Chamberlain that he should silence the anti-Nazi forces in Great Britain.

Closely related to modern man's assumption that reason is a neutral principle transcending the differences between competing systems is the conscious or unconscious allegiance to pragmatism. He has readily accepted the principle that we must test everything by the way in which it works but he has not seen that consequences can only be evaluated in terms of a criterion which transcends and yet is relevant to that which is being "tested." From any other standpoint such a criterion will be regarded—and rightly so—as arbitrary. John Dewey's writings on education are filled with illustrations of this tendency of the modern mind to absolutize his own criteria in the act of attacking others as arbitrary. Thus Dewey may be right in arguing that no tradition, be it that of a political party or a Church, can be accepted as the final criterion but he is certainly wrong in assuming that therefore man does not

³⁷ In Rosenberg's *National-Sozialistische Monatshefte* (*National Socialist Monthly*) for January, 1939.

³⁸ Quoted by "Ignis" in an article *The Situation in Switzerland in Contemporary Review*

need any such criteria at all. In practice one inevitably enters. In Dewey's case it is that of early twentieth-century science, seen through the spectacles of an American middle-class liberal intellectual of an older generation.

It is due to this confusion about the ultimate criteria of evaluation that the modern mind has been so prone to believe in progress for (to quote a typical exponent) "each and every problem of social life will yield to intelligent and patient investigation by the psychologist, the economist or the biologist."³⁹

This optimistic philosophy, during its heyday over the last hundred years, had a secure material foundation in the expansion of capitalist enterprise over the whole world, and it found its intellectual justification in the theory of biological evolution. This conviction was reinforced by the successful application of the discoveries of science to invention, a process which led to an increasing capacity to satisfy man's immediate needs. Wherever man met with an inconvenience, a gadget could be invented and marketed and the inconvenience could be removed. An appropriate symbol of the effect of this process on human life is the debasing of the word "comfort." Originally it meant strengthening with an inner strength which enabled a human soul to rise above his material surroundings.⁴⁰ Now it means exactly the opposite. A comfortable existence is one which has integral to it the wherewithal to buy and use the gadgets of a plutocratic society.

As W. E. Hocking⁴¹ dryly points out, if death and the weather seem to lie beyond man's complete control, then modern man simply regards their conquest as postponed rather than impossible. It is still the silent assumption of modern man that, within this context, human intelligence pursuing scientific method in psychology and the social sciences can solve all problems and that, therefore, in this world and on the plane of history he will build Utopia.⁴² This unbelievable optimism never faces up to the truth of Bertrand Russell's remarks in his famous essay, *A Free Man's*

³⁹ *Human Affairs* by R. B. Cattell, J. Cohen, and R. M. W. Travers, London, 1938, p. 6.

⁴⁰ E.g. in the Elizabethan English of the Authorized Translation of the Bible we have "Comfort ye, comfort ye, my people" (Isa. xl. 1). Similarly in the 1662 edition of the Book of Common Prayer, the Collect for the Third Sunday after Trinity runs "may by Thy mighty aid be defended and comforted in all dangers and adversities."

⁴¹ In *What Man Can Make of Man* (New York, 1942).

⁴² As exhibited, for example, by Joseph Needham in his *Time, the Refreshing River* (London, 1942).

Worship. Though written in 1903, the progress of astronomical physics has not added nor subtracted from their truth. They read:

That all the labours of the ages, all the devotion, all the inspiration, all the noonday brightness of human genius, are destined to extinction in the vast death of the solar system, and that the whole temple of man's achievement must inevitably be buried beneath the debris of a universe in ruins—all these things, if not quite beyond dispute, are yet so nearly certain that no philosophy which rejects them can hope to stand.⁴³

The faith of the liberal optimist in science is so profound that, when pressed to justify his faith in face of all the evidence against it as represented by wars, civil and international, he retorts in the words of his prophet, John Dewey:⁴⁴

That coercion and oppression on a large scale exist no honest person can deny. But these things are not the product of science and technology but of the perpetuation of old institutions and patterns untouched by the scientific method. The inference to be drawn is clear.

It is that past failures are due to the fact that the scientific method

has not been tried at any time with the use of all the resources which scientific material and the experimental method now put at our disposal.

Modern warfare by its nature and extent in the contemporary scene provides a tragically apt illustration of the argument against the belief in progress. Never has a civilization arisen whose hopes have been more extravagant and yet doomed to such complete frustration. The wars which convulsed Europe in centuries previous to Napoleon's time did not disturb the *minds and emotions* of large masses of people—whole classes or whole nations. Entire communities sometimes suffered devastation but more often than not the citizens of, say, a besieged city would pass from the power of one king or commander to that of another without suffering any extensive loss in life and property. As the physician-historian, Dr. Winter, in John Steinbeck's novel, *The Moon is Down*, remarks "Kings and princes played at war in the way Englishmen play at

⁴³ In *Mysticism and Logic* (London, 1918), p. 47. The most recent of serious considerations of the future of the earth comes from George Gamow, the Russian theoretical physicist, in his book *The Biography of the Earth* (New York, 1941). He reviews the evidence—drawn from astronomy, physics, geology and biochemistry—and comes to the conclusion that terrestrial life will come to an end in about ten billion years' time when the sun will become about a hundred times hotter than it is to-day with the result that the average temperature of the earth's surface will reach approximately 100° C. (See pp. 235 f.).

⁴⁴ *Liberalism and Social Action* (New York, 1935), p. 82 and p. 52.

hunting." However, the wars of the French Revolution and the Napoleonic Empire changed all this, for they were far more devastating than any which Europe had previously seen. They manifested an energy and a ruthlessness which had previously been unknown, precisely because they were conflicts not between dynasties or rival barons but because they were wars between nationalized states. Indeed, the transition from the monarchical state to the democratic state brought with it the psychological as well as the economic possibility of a vastly increased expansion of the powers available for armed conflict.

Thus in a sense we can say that the present war is simply the natural outgrowth of a process which is more than a century old. There are, however, two factors which indicate that war in the twentieth century is "totally" more devastating than those in previous centuries. The first is that when Napoleon conquered Europe he did so in the name of and bringing the message of the liberal revolution with its ideals of liberty, equality and fraternity; but as Hitler conquers Europe he does so in the name of the very negation of these ideals. The second is even more significant. Napoleon's armies moved very little faster than those of Julius Cæsar or Alexander the Great. However, thanks to the technical development of the radio and the internal combustion engine, a whole mechanized army of to-day can move faster than the speediest cavalry division of previous times.

Moreover, to-day whole nations or races or classes (thanks to the technique of communication of ideas based on modern science) can feel, and what is more disconcerting, claim the right to feel, the passion of hatred for those who do not belong to their nation, their class, or their race.

So, too, in domestic affairs within a nation. The political life of Great Britain in the decade before Hitler's invasion of Poland was marked by deliberate appeals to class and national sentiment. During the General Election in 1935 more than one constituency was deluged with pamphlets urging the electors: "Do not betray your class—vote Labour." From the Conservative side Sir Edward Grigg attacked Communism which, "by preaching class war, undermined national unity, and that was a sacred possession to be preserved at all cost."⁴⁵ A member of the then British Cabinet, Sir Samuel Hoare, was greeted with cheers when he informed⁴⁶

⁴⁵ Speech at Altrincham. Reported in *The Times*, October 17, 1936.

⁴⁶ Reported in *The Times*, October 2, 1936.

the Annual Conference of Conservative and Unionist Associations that "the communications of a great oceanic empire must be secured, whatever may or may not happen in other countries of the world."

Such tribalism of the intellect and will is not restricted to the European side of the Atlantic Ocean. In a report to the Biennial Meeting of the Federal Council of the Churches of Christ in America, held as recently as 1941, the committee dealing with *The State of the Church* solemnly concluded that "the overwhelming weight of opinion in the churches is against American involvement in *foreign*⁴⁷ wars."

It is a sad commentary on the failure of liberalism with its pathetic reliance upon science and popular education that these two factors—in the radio and the popular newspaper respectively—have been mainly responsible for the universality of the emotions of hate and fear.

It is not merely that war is the supreme symbol of this process at work but it is also its inevitable effect. History has vindicated to the hilt Benda's prophetic words⁴⁸ (written in 1928):

If we ask ourselves what will happen to a humanity where every group is striving more eagerly than ever to feel conscious of its own particular interests, and makes its moralists tell it that it is sublime to the extent that it knows no law but this interest—a child can give the answer. This humanity is heading for the greatest and most perfect war ever seen in the world, whether it is a war of nations, or a war of classes.

We have taken war as an example since it is the most forceful and the most tragic illustration of the way in which events have so rudely shaken the optimistic belief in progress which has been one of the cherished dogmas of the liberal outlook. Had we taken any other illustration the same conclusion would inevitably have forced itself upon us: man's history, whether in the life of the individual or the life of society, is one long commentary on the theme that *with ever-increasing possibilities and achievements of order there come ever-increasing possibilities and achievements of chaos*.

The growth of any child furnishes a dramatic illustration of this theme for all who have eyes to see. The child, when a baby, lies in his cot, placid and content until he drops his rattle over the side. The fond father, left to look after his offspring, puts down his book or newspaper and crosses the living-room to pick up the

⁴⁷ Italics mine. A. S. N.

⁴⁸ *The Treason of the Intellectuals*, p. 183.

offending rattle. As he does so he longs for the time when the child has made sufficient mental and physical growth to retrieve his own lost property. The infant grows and achieves this capacity to introduce order into his young life. The parent's longed-for possibility of order has now been achieved. However, with ever-increasing possibilities and achievements of order there come ever-increasing possibilities and achievements of chaos. The same infant legs and arms which can retrieve lost rattles can now climb stairs and turn on bath-taps, and the fond parent must now put down his book or newspaper not to be interrupted from his reading for a minute but to spend several minutes dealing with overflowing wash bowls. To give a more sophisticated example, Karl Mannheim's shrewd observation⁴⁹ can be quoted:

The leisure which technical improvements have brought in their wake has raised a number of social problems, need for political conflicts, educational readjustments, etc., which sap the energy which technique originally set out to save.

Indeed, every advance in science inevitably illustrates this theme. The invention of the miner's safety lamp by Sir Humphry Davy did not diminish the number of deaths in coal-mines since it made it possible for deeper mines to be worked.⁵⁰

This co-ordinating and integrative principle that with ever-increasing possibilities and achievements of order there come ever-increasing possibilities and achievements of chaos is not only true of man's rational life. It is bound up with man's existence as man. It means that each level of moral and spiritual achievement has its corresponding temptations and the inevitable failure which follows the attempt to achieve the goal which the human spirit sets before itself. In the graphic words of Aldous Huxley,

The intelligence, the sensibility, the spirituality of Satan is always exactly proportionate to the intelligence, sensibility and spirituality of the individual in whom he is at work.⁵¹

We have so far discussed the collapse of the liberal dogma of scientific individualism from the standpoint of the natural sciences,

⁴⁹ In article, *Present Trends in the Building of Society*, p. 279 of *Human Affairs*, edited by R. B. Cattell *et al.* (London, 1938).

⁵⁰ See J. G. Crowther, *British Scientists in the Nineteenth Century* (London, 1935), pp. 62-3.

⁵¹ Huxley's conclusion at the end of his biography of Father Joseph, Cardinal Richelieu's Secretary of State, *Grey Eminence* (London, 1941).

as such, and in the light of their impact on society. As we worked out our conclusion that the assumptions that science is presuppositionless; that it is completely independent of philosophy; and that it views reason as a neutral arbiter between contending opinions, can no longer be entertained, only indirectly did we consider the social sciences. We must now give more explicit attention to the state of psychology and the social sciences and ascertain whether the signs of the times in these spheres of learning also indicate that the liberal dogma must be seriously revised. We shall find—to overrun the argument—that such is the case and, what is more, we shall see that another feature of that dogma (which so far we have not explicitly considered), to wit, that science is objective and impartial in the liberal sense, is no longer tenable.⁵²

In parenthesis we might notice here that in a most profound sense we can say that the claims of psychology and sociology to be called sciences really means that the scientific movement has come to an end of an era. As we have seen in the previous chapter, modern science began with Galileo by taking as its field the simplest possible properties of matter, viz. mass, speed and extension. Thence arose mechanics and, out of that, physics. The next move came when chemistry emerged as the study of the specific properties of matter. By the middle of the nineteenth century, thanks largely to the work of Charles Darwin and his followers, biology could lay successful claim to be called a “science.” Not the least significant fact about Karl Marx in the social sciences and Sigmund Freud in psychology is that in his own field each of these two pioneers can rightly claim to have introduced—in a fashion not equalled by any of their predecessors—the method and principles of the natural sciences. This has simply meant that science has become scientific about itself. In psychology we are, among other things, considering the scientist scientifically. In sociology we are, among other things, considering the scientific movement scientifically. In either case we have science turning to *itself* as the field for investigation.⁵³

Just as natural scientists have adopted the conventional belief

⁵² I would remind the reader that this attempt to separate out the different features of a particular dogma is extremely artificial. To attack any part of a dogmatic outlook is simultaneously to be attacking the whole.

⁵³ I am indebted to Mr. F. B. Welbourn for pointing out to me that John Macmurray has similarly worked out the significance of the emergence of “a psychology of psychology” and “a sociology of sociology” in *The Boundaries of Science* (London, 1939).

that physics and chemistry were able to advance by ceasing to be regarded as a branch of philosophy ("natural philosophy") so for the past few decades it has been part of the orthodoxy of the liberal tradition to maintain that psychology only became scientific when its practitioners ceased to regard it as a branch of philosophy ("mental philosophy") and instead viewed it as an autonomous subject.⁵⁴

There is little doubt but that psychology has made tremendous strides by departing from the endless verbal analysis of the meaning of "perception," "attention," "introspection," and the like, characteristic of traditional mental philosophy, and by seeking instead to base itself upon empirical facts experimentally discovered. However, as developed through the work of its most brilliant exponents, Freud, Jung and Adler, nothing has done more than modern psychological studies to shake man's confidence in the dogma of liberal rationalism.

The first canon of liberal orthodoxy to be shaken from this standpoint is the notion that science is without presuppositions and that it is independent of all philosophical assumptions. This can be seen from two angles, the first by considering how method depends on ontological assumption and the second by noticing that differences between the psychological schools are "trans-scientific." In short, that they are philosophical.

In considering the first, let us take a clinical problem like that of the integration and life-adjustment of the single woman. Among the workers who have dealt with this problem let us consider Laura Hutton⁵⁵ and Esther Harding.⁵⁶

Both these writers are concerned with solving the same therapeutic problem. Their results are strikingly dissimilar. Dr. Hutton describes a technique that is directed toward the achievement of individuality and freedom by the autonomous self. Dr. Harding, on the other hand, presents a technique which is based on the need for the human self to find its fulfilment in loyalty to trans-human values. It is quite clear that these two medical psychologists adopt two different means of achieving the same end because they approach the problems of their science from the standpoint of differing presuppositions. In other words, their scientific conclu-

⁵⁴ See, e.g., *Foundations of Social Hygiene* (published by the British Social Hygiene Council, London, 1930), where (p. 26) Cyril Burt accepts this view of the matter.

⁵⁵ *The Emotional Life of the Single Woman* (London, 1937).

⁵⁶ *The Way to a New Self* (London, 1937).

sions about means are conditioned, almost to the point of being determined, by their allegiance to particular values.

It is not enough to say that this ought not to be the case. There is not a single psychologist living who does not at some important point in the presentation of his conclusions exhibit similar illustrations of the same process at work. What is more, there is no reason to believe that the situation will ever be different unless the differences between the opposing psychological schools are seen to be what they are, viz. trans-scientific.

It is failure to see this which leads to so much bitterness among the contending schools. Thus William McDougall maintained⁵⁷ a few years ago that the lack of discussion between the Freudians and the non-Freudians is hampering the progress of psychology. He complained that the psycho-analysts, to quote his words,

are little disposed to enter such discussion. They for the most part require of the psychologist unconditional surrender without parley of any sort. The disciples of each psychoanalytical sect are quite sure that they alone see the truth and that their prophet is the only true prophet.

McDougall was completely unable to see that the differences he deplores are, in the sense we have been using the word, dogmatic differences which cannot be solved on the easy plane of discussion which he optimistically describes:

If scientific knowledge of human nature is not to be attained, that is not due to any intrinsic impossibility, any radical inadequacy of the scientific method: but is rather due to the lack in us of sufficiently developed intellectual powers.⁵⁸

Indeed, it is not an exaggeration to say that these differences cannot be solved on the scientific plane since they are religious differences. The different schools of psychology show all the signs of religious sects. They have their separate training schools, for all the world like theological seminaries. Convinced adherents of a school display an attitude toward the founder of a school which is reminiscent of allegiance to a religious leader. The writer was present a few years ago at a reception to meet C. G. Jung. After the founder of the Zurich school had delivered his address, one of the Jungians present turned to his neighbours and remarked, "Jung is the only source we have got; we can't get behind him." The speaker was not an adolescent schoolboy nor a neurotic

⁵⁷ See p. 17 of *Psychoanalysis and Social Psychology* (London, 1936).

⁵⁸ *Ibid.*, p. 5.

spinster, but a distinguished Fellow of the Royal College of Physicians.

Lest Freudians see in this incident simply an illustration of Jungian simplicity, I should add that one of their equally distinguished leaders behaved so much like a religious fanatic in one medical school where he was teaching that its governing body now refuses to allow any analysed physician to teach in the medical school in question or practice in its attendant hospital. This refusal is, of course, intolerant and absurd; however, it simply presents us with another striking illustration of the age-long problem of the attitude of the unbeliever when he is forced to deal with the extravagancies of the over-enthusiastic believer.

The history of Jung's break with Freud graphically illustrates the fact that the study of psychological processes sooner or later challenges the scientist to make explicit his philosophical position. Freud's discovery of genius was his proof that there exists a definite realm of psychological determinism. He saw that the emotional and mental life of man is not one sphere of meaningless and unrelated thoughts, feelings, motives, sentiments and the like, but that each expression of the psychological life of the self, however trivial in appearance it may be, exhibits definite patterns of relations with other manifestations of the self. It is no exaggeration to say that for an equivalent illustration of a genius' perception of the inter-relatedness of things, we have to go back to Newton's epoch-making discovery that the laws of gravity apply with equal relevance to a stone falling to the earth or to the moon revolving round it.

However, as R. H. Tawney once remarked of Max Weber:⁵⁹

It is a temptation of one who expounds a new and fruitful idea to use it as a key to unlock all doors and to explain by reference to a single principle, phenomena which are, in reality, the result of several converging causes.

This certainly happened with Freud and that is why he insisted that psychological theories should be limited to the explanation of empirically educed facts and—on the lines of deterministic explanations characteristic of nineteenth-century physics—he maintained that psychology can only give an account of the self in purely causal terms. Jung, on the other hand, argues that causal explanation of this type, however useful it may be in relating

⁵⁹ In his preface to the English translation of Weber's *Protestant Ethic and the Spirit of Capitalism* (London, 1930).

certain psychological phenomena, could not be regarded as an exhaustive mode of explanation. On the contrary, he maintains that explanation in terms of purpose is equally necessary. In short, Freud followed Galileo for whom events in nature expressed a pattern of causal relations, whereas Jung insists that such a view by itself is inadequate. The wide divergencies between the two schools have been clearly recognized by the two leaders. Jung, for example, characterizing those who follow Freud as the Vienna school and those who follow himself as the Zurich school, describes the difference between the two schools as follows:

I am unable to explain fully the fundamental differences between the two schools, but would indicate the following points: The Vienna school takes the standpoint of an exclusive sexualistic conception, while that of the Zurich school is symbolistic. The Vienna school interprets the psychological symbol semiotically, as a sign or token of certain primitive psychosexual processes. Its method is analytical and causal.

The Zurich school recognizes the scientific feasibility of such a conception, but denies its exclusive validity, for it does not interpret the psychological symbol semiotically only, but also symbolistically, that is, it attributes a positive value to the symbol.

The value does not depend merely on historical causes; its chief importance lies in the fact that it has a meaning for the actual present, and for the future, in their psychological aspects. For to the Zurich school the symbol is not merely a sign of something repressed and concealed, but is at the same time an attempt to comprehend and to point out the way of the further psychological development of the individual. Thus we add a prospective import to the retrospective value of the symbol.

The method of the Zurich school is therefore not only analytical and causal, but also synthetic and prospective, in recognition that the human mind is characterized by *causæ* and also by *fines* (aims). The latter fact needs particular emphasis, because there are two other types of psychology, the one following the principle of hedonism, and the other following the principle of power. Scientific materialism is pertinent to the former type, and the philosophy of Nietzsche to the latter. The principle of the Freudian theory is hedonism, while that of Adler (one of Freud's earliest personal pupils) is founded upon the principle of power.⁶⁰

That a school of psychology differs from its rivals because of the differences as to which "principle" is to be taken as basic, proves beyond doubt that the notion that science is independent of philosophy, however plausible it might be to the chemist or physicist, breaks down utterly as soon as we enter the realm of the *Geisteswissenschaften*.

⁶⁰ Pp. vii-viii of the preface to his *Collected Papers on Analytical Psychology* (London, 1916).

Similarly the radical separation between fact and value which the liberal rationalist philosophy of science has taught, must be rejected if we seek an adequate intellectual basis for psychotherapy. Even if the therapist, like some Freudians, believes in a moral nihilism, he cannot escape from the intrusion of morality into the very centre of his scientific technique. This is seen most clearly if we consider the well-known phenomenon of transference. If it is positive, then the patient gradually assimilates the analyst's general attitude toward life. If it is negative, then the patient, in rejecting one set of values and pattern of behaviour as undesirable, inevitably accepts its opposite. In the emphatic words of the leading English exponent of Jungian psychology:

This unconscious identification with the analyst is quite outside the sphere of the latter's control. It is inherent in the analytical relationship. But for the analyst to wash his hands of this unconscious effect, with its far-reaching moral influence upon the patient's subsequent development, is as irresponsible as though a surgeon were to shut his eyes to the inevitable dangers of hæmorrhage and sepsis. The question of moral responsibility, therefore, is inherent in analytical practice, and, since this is so, we have every right to demand of a practical psychological system that it shall attempt to discover the fundamental laws of human development and, as far as possible, to formulate them.⁶¹

Before we leave this consideration of the need to revise the traditional philosophy of science which modern psychology thrusts upon us, we must notice that the very nature of a neurosis presents us with what is perhaps the most forceful indication we have of the extent to which, in this realm, a science and its philosophy are integrally connected. Health can be defined as the successful adaptation of an organism to its environment. A broken leg caused by running into a bus, or malaria caused by a mosquito bite, indicate a state of affairs where the organism and its environment were not in harmony with each other. Now, a neurotic condition is the result of an unsuccessful attempt at adaptation of the self to the environment. The question which immediately occurs is: "What is the nature of the reality to which a particular individual has failed to make successful adaptation?" All serious answers to that question involve reference to an environment which is more than physico-chemical. Indeed, it is from this recognition that all modern medical psychology dates. As H. G. Baynes remarks:

⁶¹ H. G. Baynes in the preface to the English translation of *Psychological Types*, by C. G. Jung (London, 1923).

The minimal adjustment to objective conditions demanded by social life could present no insuperable difficulty to anyone but an imbecile *unless* there were another reality of a very different nature always competing with the concrete world for prior claim upon our energy.⁶²

As soon as an attempt is made to give any further content to what we mean by this other reality then we find ourselves in a field which can only be called metaphysical. The Marxist will introduce the concept of the class struggle and the need for identification with the workers; the Nazi will introduce the concept of the "*Volk*" and the need for identification with the "Führer"; the liberal rationalist will introduce the concept of individual freedom and the need for self-expression; while the Christian will introduce the concept of obedience to the will of God and the need for allegiance to Jesus Christ.

Corresponding to each concept of the nature of the ultimate environment in relation to which successful adjustment is sought, there will be a correlative concept of the human nature or what can only be called the *psyche* or the soul. As R. Muller-Freienfels remarks in opening his exhaustive *Evolution of Modern Psychology*, "The formerly ostracised soul (has) won admission and with full honours to the halls of science."⁶³

The attack, from the standpoint of modern psychology on the liberal concept of reason as a neutral arbiter between contending opinions has been equally devastating. Other thinkers before Freud had suggested that the human mind was far from being a machine-like instrument pursuing truth for its own sake in a fashion unsullied by any hidden desire to find reasons for beliefs already held. Francis Bacon had remarked that

the human understanding resembles not a dry light, but admits a tincture of the will and passions, which generate their own system accordingly, for man always believes more readily that which he prefers.⁶⁴

F. H. Bradley had defined philosophy as the attempt to find reasons for what we believe on instinct. William James had introduced the notion of the will to believe. Bertrand Russell had suggested that one reason why scholars in the realm of the social sciences did not find the truth more often was simply because they did not want to. However, no one took them seriously; perhaps

⁶² *Loc. cit.*, p. viii.

⁶³ *Loc. cit.*, p. 1 (New Haven, 1935).

⁶⁴ *The Physical and Metaphysical Works of Lord Bacon*. (Edited by Joseph Devey. London, 1891), p. 393.

mainly because they did not do so themselves. The effective assumption of Western culture, certainly among professional thinkers, is that man's reason, unfettered by dogma, freed from superstition and unhampered by tradition is, or at any rate can be, devoted to the pursuit of truth and nothing but the truth. This facile assumption can no longer be entertained. Whatever revision may be the future lot of Freudianism, its basic contention, that man's reason is not the autonomous instrument which the liberal rationalist so easily believed it to be, will stand. Thanks to Freud, an axiom of all future thinking on the problem of the knower and the known is that integral to all the surface manifestations of the reasoning mind is the influence of deeper motives, feelings and purposes which the individual thinker conceals not only from others but even from himself.

It is important to notice that Freud and his followers do not accept with equanimity the fact that the mind is, so to say, poisoned at its source. On the contrary, the whole system of training the analyst presupposes that the tendency of the mind to look round for reasons which justify already-held conclusions can, through analysis, be partially transcended. Correspondingly, the mind of the unanalysed person lies in chains. Indeed, so much is this the case that Freud, speaking for his school, expressed reluctantly the following conclusion:

We have been obliged to recognize and state as our considered opinion that no one has a right to a say in psychoanalysis unless he has been through certain experiences which he can only have by being analysed himself.⁶⁵

By no possible series of logical circumlocutions can this contention of Freud be fitted into the liberal rationalist's picture of science as "objective" and "impartial." One of the latter's commonest accusations against theology and philosophy is that their conclusions, unlike those of the sciences, have only an appeal to the already initiated, to the like-minded, to the disciples. In contra-distinction to philosophy or theology, science, he maintains, has a universal appeal in virtue of the universal validity of its conclusions, which, of course, is not the same thing as universal understanding or comprehension. However, he adds, if conclusions are universal then they must be susceptible to universal transmissibility. In other words, he concludes they must be objective and independent of the experience of the knowing subject. He

⁶⁵ *New Introductory Lectures on Psychoanalysis* (London, 1933), p. 98.

can either hold on to this tenet of his creed or he can accept the contribution of Freud and Jung as legitimate additions to the body of scientific knowledge. What he cannot do, and still claim to be logical, is to try to do both. In practice there is no real choice and the notion that science is the correlation of all experience "common to all normal people,"⁶⁶ whence lies the origin of its objectivity and impartiality, must be relegated to the limbo set apart for outworn ideas.

If the internal development of psychology illustrates the collapse of the liberal rationalist philosophy of science even more is that collapse thrown into clear relief by what has happened in the social sciences. Fifteen years ago, W. F. Ogburn and Alexander Goldenweiser could close the introductory chapter of their ambitious volume, *The Social Sciences and their Interrelations*, with the words:⁶⁷

Civilization, nurtured and strengthened by the natural and the exact sciences, must henceforth look for its preservation and enhancement to the sciences of society.

A social scientist, making such a statement in this year of grace, would be either Rip Van Winkle or a fool. The only hope for the social sciences lies in a candid recognition that their failure to agree on the solution of any problem of importance has its origin in differences which are trans-scientific. This means that the whole thought world of the social sciences—what we have called the liberal dogma—in its relation to and in terms of which the traditional disciplines took their meaning, must be reconstructed.

There must first be the recognition that scientific method in the social sciences or anywhere else is not simply "getting at the facts." This naïveté has persistently dogged the footsteps of social scientists, especially sociologists, ever since Comte's elimination of the need for a true appraisal of philosophy in any attempt to understand society. In the United States this influence on sociology, the most foundational of the social sciences, has been particularly disastrous. F. H. Giddings set the style for a generation when he described the scientific study of society, in a book with that title, as "nothing more nor less than getting at facts, and trying to understand them and what science does for us is nothing more nor less than helping us to face the facts."⁶⁸

⁶⁶ See *Science and Human Experience* by H. Dingle (London, 1931).

Had sociologists not been so obsessed with Comte's self-confidence they would not have been so ready to show out metaphysics through the front door with the statement that scientific thinking had outmoded metaphysical thinking, only to admit unconsciously through the back door, metaphysic's bastard child, phenomenism. Had they been a little more aware of what they were doing they would have saved themselves much labour in preparing—and research foundations much money in financing—the innumerable pretentious surveys of "the facts" of this, that, and the other social problem. They would have realized, in the classic words of T. H. Huxley to the biologists of his own day, that a collection of facts no more makes a science than a heap of stones is a house. They would have recognized that the problem of the backwardness of the social sciences, as compared with the natural sciences, is not one which can be solved simply by the accumulation of facts. The search for more facts as the cure for our present ills in the social sciences is like suggesting that the remedy for indigestion is more food, or, for a drowning man, more water.⁶⁹ What is in fact required is a new orientation of the facts. That in itself is, in a sense, a new fact but it is only another fact in the sense that a magnet is more iron; yet to bring it near to a crowded mass of iron filings is to introduce an order which the mere addition of more iron filings until Doomsday would certainly never give.

This is not the place to attempt to sketch out the outlines of the way in which social facts are to be orientated or, to be more accurate, from what perspective new facts are to be collected and collated. It is sufficient for our immediate purpose to notice that as soon as we enter into the intellectual realm where it is proper to discuss the nature of such a perspective, then we have left "science" and are engaged in dealing with philosophy.

If the foregoing argument is sound we are left with the inevitable conclusion that if we accept the autonomy of any one of the particular social sciences then we do so at the cost of excluding the more interesting, and indeed more urgent, problems of social science, since to deal with them is impossible, except in terms which throw overboard the traditional distinction between science and philosophy. This conclusion is well illustrated by the emergence of schools of thought within the social sciences, the clashes

⁶⁹ And in any case where are we going to stop in looking for more facts? The last decennial index to *Chemical Abstracts* contained about two million entries.

between them being of such a nature that they cannot be solved on the scientific plane since the very basis of rational discourse on that plane is excluded. This is evident if we notice that the counters of discussion such as words like "economics," "politics," "nation," "man," "class," and the like, derive their different meaning from the philosophy of the opposing social groups or political parties which use them. Plainly, e.g. "class" does not mean the same to H. J. Laski as it does to Mortimer J. Adler or Alfred Rosenberg.

Herein we see why a book on method, such as *History and Prospects of the Social Sciences*,⁷⁰ published as recently as 1925, is now strangely out of date, for it was written on the assumption that it was possible under the heading "political science" or "economic science" to discuss the subject matter of the two sciences as if they were as circumscribed as those of organic chemistry or astrophysics. But now, in the days of a collectivized economic order, we see that these spheres are inextricably connected and that the measure of independence which they had was only valid during a restricted period in man's life on this planet, viz. the rise and heyday of a capitalist economy based on the independence of business activity from all government control except the furnishing and guarantee of the legal framework of private property. What is at stake, therefore, is whether these labels have any validity if they are applied to the affairs of the workaday world as distinct from the world of academic thought conceived as it is in terms of university departments. Perhaps the answer is that the labels are simply "academic" in their significance.

However the argument that if the social sciences are to prove fertile in the elucidation of living problems then they must be integrally related to philosophy "butters no parsnips" unless we face the truth of Paul Tillich's dictum that "philosophy is the direct self-expression of a period in the theoretic sphere."⁷¹ Nothing indicates more clearly that we are in an age of cultural decline than the fact that logical positivism is the most influential school among younger philosophers. I do not wish to suggest that the whole of the activity of the logical positivists is a waste of time. In particular their appeal for and efforts toward an accurate and consistent use of language deserves nothing but complete support.

⁷⁰ Edited by Harry Elmer Barnes (New York, 1925).

⁷¹ *The Religious Situation*, English translation by H. R. Niebuhr (New York, 1932),

No one can enter the field of the social sciences from that of the natural sciences without reaching the speedy conclusion that not the least shortcoming of the social sciences lies in the failure of their original founders to create a new vocabulary. Instead of following the example of men like Galileo, Newton, and Dalton who devised a specific vocabulary for the new sciences of physics and chemistry, the makers of the social sciences sought to use the language of the marketplace and the council chamber and to make it serve a purpose for which it was never intended, namely, as the vehicle for precise thinking. The result has been calamitous for, to give one example, the word, "politics," has been used both to designate the activity of politicians and as a synonym for "political science" as the scientific study of that activity. Similarly the noun, "economics," has been used both to indicate, on the one hand, economic activity or economy and to indicate, on the other, "economic science" which is really the proper combination of adjective and noun to describe the study of that activity.⁷² In short, the same word has been used for the study of an aspect of the life of society as has been used to indicate that aspect itself. It is as if, for example, in the natural sciences, "physics" had been used as a noun to indicate both the study of the accidental properties of matter and the properties themselves.

Alternatively, in justifying the appeal of the logical positivist for the accurate use of language, we could have taken the uncritical use of spatial metaphors such as "outside" as indicating one contributory factor that has rendered the social sciences largely sterile. What, for example, are we to make of an economist like Lionel Robbins who devotes a book on *The Great Depression*⁷³ to prove the thesis that the depression was due to arbitrary outside interference with the working of the economic system? What in Heaven's name is *outside* the system? If a chemical reaction does not come up to expectation the chemist does not stand in a glow of self-admiration and then say that outside interference is responsible. He investigates the nature and cause of that *outside* interference to find whether it comes within his proper field as chemist and, if it does, he accepts the challenge and seeks to discover what it is. It was precisely in this fashion that Sir William Ramsay and his assistants discovered the inert gases and added

⁷² In countries like Germany, where more attention has been given to methodological studies, this ambiguity has not appeared. There the distinction between *Wirtschaft* and *National Ökonomie* is readily accepted.

argon, krypton, neon and zenon to the list of chemical elements.

However, to recognize the necessity of precision in the use of words is one thing. To accept the adequacy of logical positivism in its entirety is quite another. There is little doubt that the rise of this doctrine in central Europe in the 1920's and its subsequent acceptance by so many younger thinkers in the Anglo-Saxon world in the 1930's was largely due to the fact that it fitted in with the widespread spirit of disillusionment with man and all his works. It seemed much better to achieve clarity than profundity! The result was that in the attempt to make the whole of knowledge "scientific," theology, metaphysics, ethics, and poetry were all dismissed as being senseless attempts to systematize what are nothing more than "the exclamatory indications of volitional attitudes."⁷⁴ Such is the end product of the creed of scientific individualism.

It is no exaggeration to say that the modern liberal democratic tradition has rewritten the Shorter Catechism so that now the purpose of man is "to be scientific in thought, word and deed." So confident has been the trust in the universal adequacy of the scientific approach to the problems of human life that in his *Folkways*, W. G. Sumner could claim that

The critical habit of thought if usual in a society, will pervade all its *mores*, because it is a way of taking up the problem of life. Men educated in it cannot be stampeded by stump orators and are never deceived by dithyrambic oratory. They are slow to believe.⁷⁵

In no place was this proud faith taught with such conviction as in the pre-Nazi German universities. Indeed, as Reinhold Schairer points out, the word *Wissenschaftlichkeit* had been coined to describe "the special form of exaggerated German scientism," which forbade those who entertained it "to think one idea that was not strictly academic and scientific; for what could not be proved scientifically and exactly did not exist."⁷⁶ There is little doubt that, psychologically speaking, the success of Hitler in getting the support of the students and younger teachers of the German universities was largely due to his provision of a theory about living which filled the vacuum, created by the older genera-

⁷⁴ W. D. Lamont in his contribution to the symposium *What Can Philosophy Determine?* Proc. Arist. Soc. Supplementary Vol. XV (London, 1936).

⁷⁵ (New York, 1907), p. 623.

⁷⁶ In his *Frank Aydelotte Lecture*, Swarthmore College, October 16, 1941.

tion of fact-hypnotized professors.⁷⁷ The tragic fate of that great country and, in particular, of its universities shows what happens when man seeks to live by facts alone. To a consideration of the meaning of the destruction of the liberal democratic universities of Europe by the Nazis and their attempt to substitute the "co-ordinated" universities of the totalitarian régime, we must now turn.

⁷⁷ A young German student, after spending some time in a Soviet university, gives an interesting confirmation of this fact. Writing in 1932, he remarks:

"The Soviet student's chief advantage over his German fellow lies, I believe, in the fact that his time at college has a clear and unmistakable purpose from the very first. His comrades in the factory or on the *kolkhos* (Collective-farm, A. S. N.) have sent him to college in order that he may acquire certain accomplishments and abilities and turn them to the advantage of all and sundry on his return to work."

Klaus Mehnert in *Youth in Soviet Russia* (E.T., London, 1933), p. 45.

PART TWO

THE TOTALITARIAN UNIVERSITY: A TRUE DIAGNOSIS BUT A FALSE REMEDY

"The easy quackery of totalitarian therapy."

H. D. GIDEONSE.

(IV)

THE FASCIST SYNTHESIS AND THE NAZI UNIVERSITY

"We renounce international science. We renounce the international republic of learning. We renounce research for its own sake. We teach and learn medicine, not to increase the number of microbes, but to keep the German people strong and healthy. We teach and learn history, not to say how things actually happened but to instruct the German people from the past. We teach and learn the sciences, not to discover abstract laws, but to sharpen the implements of the German people in competition with other peoples."

Speech at the Centenary of the University of Göttingen, 1937.

No less an authority on the subject than Herr Hitler has repeatedly declared that the war between the Axis powers and the United Nations is, to quote from one of his speeches, "a conflict in which more than the victory of only one country or the other is at stake; it is rather a war of two opposing worlds." The German Führer further maintains, and again we can agree with him, that the outcome of the present struggle will determine the destiny of Europe and, indeed, of the whole world for the next thousand years. It is conventional to say that a Nazi victory would mean a return to the Middle Ages, the implication being that the Nazi *Weltanschauung*, with its defence of collective authority and

its rejection of individual freedom, is akin to the set of ideas that dominated medieval Europe. Thus Eva Lips movingly writes¹ of Cologne after the Nazis came to power:

There was no longer a Museum; there was no longer a University. There were only institutions of propaganda, brothels of the spirit. There were no longer any independent scholars—only tools of the new system. The walls of learning parted and I saw the horrors behind them: soldiers and bayonets, falsehood and force. We still sat in our own house. But the Siebengebirgsallee was no longer Cologne, and Cologne was no longer Germany. An earthquake had engulfed our country, and we had sunk back into the Middle Ages.

That such a view of the matter is an insult to the Middle Ages is obvious, if, to take one illustration, we consider the fate of the universities in Nazi Germany and Nazi-occupied Europe. No one would deny that there are superficial resemblances between Hitler's Germany and medieval Europe; one can compare the destruction of all available copies of Tyndale's translation of the Bible with the spectacular bonfire of twenty-five thousand books outside the University of Berlin on May 13, 1933. There is, however, one plain fact which, when its significance is appreciated, rudely destroys once and for all any notion that the Nazi challenge to democratic ideas and practice can be regarded as one within the framework of Western civilization. That fact is the fate of the universities.

The doors of the medieval university were open to all and sundry. The late Professor Friedrich Paulsen, of the University of Berlin, furnished an interesting illustration of this in his classic volume on *The German Universities: Their Character and Historical Development*. He pointed out² that the first name given to the medieval university was *studium generale*, the word *generale* being used to indicate that the institution sought to be a teaching institution for all Christendom, irrespective of national and territorial boundaries, and also because the degrees granted by it were recognized throughout all Christian countries.

Boundaries of nationality and language disappeared as students and teachers alike sought to pursue that truth which transcended any local expression of it. Indeed, the word *university* etymologically and according to its use in the Middle Ages, refers to the

¹ *What Hitler Did to Us* (London, 1938).

Cf. "Nazi Germany stands condemned as guilty of a persecution no less barbarous and an intolerance as rigid and as gross as any that figure in the history of the Middle Ages." Sir Richard Gregory in *Science in Chains* (London, 1941), p. 11.

² English translation by Edward D. Perry (New York and London, 1895), p. 21.

international character of the students who gathered at a university. Foulques of Deuil graphically expressed in a letter to the greatest teacher of the time, Abelard, how students of every land flocked to hear his lectures in the school of the Church of Sainte-Geneviève, now the site of the University of Paris:

Rome sent you her children to educate, and she who once inculcated in her hearers the knowledge of all sciences showed, by sending you her pupils, that your wisdom was superior to her own. Neither distance, nor the height of the mountains, nor the depth of the valleys, nor the roads beset with perils and infested with robbers, prevented them from hastening to you. The host of young Englishmen feared neither the passage of the sea nor its terrible storms; despising all peril, as soon as they heard your name uttered, they hastened to you. Distant Brittany sent you its children to teach; the Angevins entrusted you with theirs. The Poitevins, the Gascons and the Spaniards, Normandy, Flanders, Germany and Swabia incessantly proclaimed and praised the power of your name. I say nothing of all the inhabitants of the city of Paris and the most distant as well as the nearest parts of France, who were athirst for your teaching as if there existed no science that could not be learned from you.³

This internationalism of learning once finely expressed by the universities of pre-Hitlerian Germany is utterly rejected by the followers of the Nazi régime. Thus a German physicist of international reputation, Philip Lenard, can open the preface to his four-volume treatise on physics—a book with the significant title, *Deutsche Physik*—with the words:

“German Physics?” one asks. I might rather have said Aryan Physics or the Physics of the Nordic Species of Man, Physics of those who have fathomed the depths of Reality, of seekers after Truth, Physics of the very founders of Science. But it will be replied to me, “Science is and remains international.” It is false. In reality Science, like every other human product, is racial and conditioned by blood.⁴

For this prostitution of the word “science,” he received his reward: “The Nazi Party Award for Science.” Similarly Ernst Krieck, the leading Nazi educational theorist, maintains that

No doctor, however well versed in the technical aspects of medical science, is a good doctor unless he first realizes and discharges his duties to the political-racial philosophy of the new Germany. To make provision for this training is the chief purpose of the university.⁵

³ Quoted by Edward M. Hulme in *The Middle Ages* (New York, 1929), p. 690.

⁴ Quoted in article, *German Universities*, by A. V. Hill, F. Gowland Hopkins, Frederick Kenyon, in *The University Review*, April, 1936, London, p. 4.

⁵ Quoted from a speech on *Medicine and the Philosophy of National Socialism* in the *Journal of Higher Education*, May, 1936 (Columbus, Ohio), p. 28.

In the light of such expressions of Nazi belief and doctrine it is no exaggeration to say that in the realm of knowledge, as indeed everywhere else, Herr Hitler and his associates wish to put back the clock of history, not six hundred years to the Middle Ages, but more than two thousand six hundred years to the days of tribal barbarism. Since the eighth century B.C. the world has been taught by a succession of scholars and prophets as diverse as Confucius in China, Gautama Buddha in India, Amos in Palestine, Socrates in Greece and Seneca in Rome that mankind is a unity. This teaching expressed itself in Stoicism as the doctrine of the common reason of man and it was taken over by Scholastic thought to become so much a part of the warp and woof of Western civilization that even during the violent controversies attending the birth of modern science in the sixteenth century it was never questioned. However, just as German Nazism, like Italian Fascism, deliberately attempts to erect a tribal ethic in the sphere of morals, so in the sphere of learning it seeks to rewrite history, the sciences and philosophy in terms of a complete rejection of the universality of knowledge. The real significance of the Nazi attack on the universal nature of learning is that the ideal itself is rejected as undesirable. At no time in European civilization has any ruling group ever dared to take up such a position. Even the Bolsheviks' rejection—following Marx and Engels—of "bourgeois" science is not a rejection of the liberal ideal. They are simply seeking to correct the failure of what they call "capitalist" science to be faithful to its own ideal; that failure they go on to say is inevitable in anything but a classless society.

Strange though it may sound, Nazism has had to attack Marxism, liberalism, pacifism and Roman Catholicism for precisely the same reason. Each of these philosophies, in spite of all their profound differences, regards truth as trans-national and, therefore, each takes its stand on an international ideal. However, for the Nazi, truth derives its significance from the master race, the *Herrenvolk*. The sole criterion of the truth of an idea is whether it will serve the German race, or rather the Nazi Party, in its unquenchable and avid thirst for power and yet more power.

It is true that the Nazis did not introduce into the world the modern concept of the sovereign state as the social institution which has the power to give orders to all within its jurisdiction and to receive orders from none. But Germany is the only nation in the

European tradition that has rigorously worked out the theory of the sovereign state and acted on it. Other nations, like France, Britain, and the United States, have never cut completely loose from the medieval notion that there is a *Respublica Christiana* according to which the positive law of a nation is subject to natural law, and natural law is subject to divine law, and therefore the law itself cannot be the sole criterion of its own justice. But to the modern Nazi such an idea is absurd, for the Führer's will is law, and, contrary to the traditions represented by a brilliant line of Anglo-Saxon theorists from John Milton through John Locke and Thomas Paine to the makers of the American Constitution, the Government is free to do as it pleases since human beings are *not* "endowed by their Creator with certain inalienable rights."

Similarly the truth of any set of ideas does not lie, according to the Nazi view, in correspondence with objective fact but in its accord with the mind of the Führer. Once that has been taken as the final authority the rationalism of the European tradition must be rejected and "instinct," "soil," and "blood" must be taken as guide; the peculiar function of the Führer being to interpret these racial instincts in accordance with the political necessities of the Nazi régime. That is why reason, free discussion and intellectual integrity alike are rejected by the Nazis since they each presuppose that truth, being something more than the ideas contained within one or more human heads, can be best appropriated by a process of open debate where idea can clash with idea.

A Harvard sociologist, E. Y. Hartshorne, in his book, *The German Universities and National Socialism*,⁶ showed how, even prior to the present war, the Nazi "total" revolution had affected the university, like every other institution, in every aspect of its life. In the field of administration the adoption of the Leadership Principle (*Führerprinzip*) means the complete elimination of the governing power of both professors and students. Instead, they are organized respectively into a "teaching-corps" and a "student-corps," each with a "leader-spokesman," and they in their turn are directly responsible to the Rector as "the Führer of the University." None of these officials is elected but each is appointed by the "Minister of Education." Hartshorne laconically summed up the effect of economic reform, and in particular of "Labour Service," as follows:

⁶ Cambridge, Mass., 1937.

Like very many of the Nazi reforms, it is only in part intended as a measure for the relief of unemployment; it serves in addition as excellent preparation for military service, for weeding out the weak of body and for training the strong in physique and "character"; as an opportunity for the propagandists to exert their influence on youths with unsophisticated minds and tired bodies; and, finally, as an effective introduction to higher study, well calculated to prepare the university beginners to accept the new educational ideals.

As early as March, 1935, the Nazis tied the universities to their military programme, and by official proclamation the universities were instructed to play their part in inculcating the ideal of "defence-mindedness" (*Wehrhaftigkeit*) while the whole curriculum was re-organized so that "defence-science" (*Wehrwissenschaft*) achieved a dominating influence on all other studies.

As a description of the Nazi idea of a university there is little to be added to the account of the first university to be founded by the National Socialists (at Posen, in German occupied Poland) as given in the *Frankfurter Zeitung*.

In view of the conditions in the east and the tasks to be fulfilled there, a number of professorial chairs of a quite new kind will be set up, especially in the faculty of philosophy. Folk-political questions and folk questions in general will be stressed. The new university will have, besides a chair of German pre-history and German ethnology, a special chair of folk doctrine. Another new feature is the institution of a chair for the study of the folk and country of the Soviet Union. . . . Posen will be the first university to have a chair of race politics in place of the chair of race hygiene included elsewhere in the faculty of medicine. . . . An almost revolutionary innovation is the institution of a chair of spiritual history. This is expected to have a great influence in a National Socialist direction, and so it will be filled by a representative of the party prominent in this field. The university will have no theological faculty.

This university is in German-occupied Poland but no Poles will be admitted; on the contrary all Polish university graduates have had to surrender their diplomas to the Nazis for destruction in order to insure that in the future only Germans will be able to apply for posts requiring a university education.

As one would expect, this Nazi concept of the place and function of a university has been worked out with all the thoroughness typical of the German mind in countries that have been conquered by the Nazi armies. Perhaps nowhere else has the Nazi rejection of the European tradition in respect to learning been more clearly exhibited than in the Nazi treatment of the universities of Poland and Czechoslovakia. A German professor in the eighteenth century, Immanuel Kant, was called the "conscience

of Europe." How he must turn in his grave as he sees, in the universities of Nazi-dominated Europe, the complete rejection of his classic sentence, "Be a person and treat others as persons." The Nazis believe, in the words of Hitler, that "the individual has no rights apart from his function as part of the State." Poles and Czechs are not viewed as individuals, even with this limitation, and hence they have no rights.

The Governor-General of occupied Poland, Frank, in an address to the German Nazi Party at Cracow on August 15, 1940, informed his hearers that "the Government-General is not to be regarded as occupied territory; it is to form an integral part of the area under the rule of Greater Germany. No one will be able to find any employment here who is not a most ruthless and a most determined National Socialist." In a subsequent address to assembled German law officers in the same city Frank informed his hearers that Poles brought before the courts were to be treated as if "they were colonial Negroes."

Poland's most famous university, Jagiellonski University at Cracow, was the first to suffer. Founded in 1364, no university in Europe has had a more honoured history. It was the Alma Mater of Copernicus, and its scholars took a distinguished part in the debates at the Council of Constance. The entire teaching staff of one hundred and eighty persons were sent by the Nazis to concentration camps. The procedure adopted was characteristically Nazi in its brutality and efficiency. These scholars were summoned to a lecture on National Socialism. When they arrived they were informed that they were incapable of understanding the basis of National Socialism except within the context of a prison camp. Many of these venerable professors, some of them with world-wide reputations, such as the economist Adam Krzyzanowski, were incapable of the physical demands and hardships of prison life and succumbed. Eighteen of them died in the Oranienburg Camp; fifty were transferred to Dachau to do heavy stone-breaking work and eventually, as men broken in body and spirit, the rest were allowed to return home, at least four of them to die.

The Universities of Warsaw, Lublin and Poznan have suffered the same fate. Professor Bronislaw Dembinski of the University of Poznan and the holder of a greatly prized honorary doctorate of Oxford University, has died in a concentration camp, while Professor Loth, the most distinguished Polish anatomist, has been

and Professor C. Biolobrzski, a theoretical physicist, are among those who, it is definitely known, have been murdered. To prevent any possible revival of Polish science, laboratories such as the Institution of Experimental Physics in the University of Warsaw have been completely demolished, and their scientific apparatus taken to the German Reich.

The treatment of the Czech universities and other institutions of higher learning has been characterized by the same cruel efficiency. Prague University, which was established in 1348, thirty-seven years before the first German university—Heidelberg⁷—was founded, has been closed. Its Health Institute, erected by the Rockefeller Fund at a cost of approximately ten million dollars, has been appropriated for Nazi purposes. Students have been imprisoned, tortured and murdered, professors taken away from their homes, libraries and laboratories, to concentration camps, and all intellectual contact with other countries has been prohibited. As in Poland libraries and museums have been robbed and priceless documents have been destroyed—for, argue the Nazis, there must be nothing to remind the Czechs and the Poles of their own independent cultural life.

The tragedy for all who care about human nature is that the crimes and cruelties committed against culture and learning are not the arbitrary actions of ill-controlled youths but they are done under the orders, to use the graphic language of R. H. Tawney, "of baldheaded men in spectacles, sitting well out of danger in comfortable offices."⁸ These orders are the outcome of calculated plans deliberately worked out within the highest circles of the Nazi hierarchy, and in accordance with the basic doctrines of the Nazi movement. The Czechs, like the Poles, on the Nazi theory, are fit only to be hewers of wood and drawers of water and, therefore, they do not need universities and all for which universities have stood in the history of Europe since the founding of the Universities of Paris and Bologna in the twelfth century.

That this policy of the suppression of learning and culture in Czechoslovakia and Poland is part of a carefully worked-out plan is evident from the fact that the universities of Holland and Denmark have not been subject to the same ruthless treatment. The Nazis believe that education, like everything else, should be sub-

⁷ There were no universities in Germany during the early Middle Ages, owing to the lack of political centralization and the absence of civilization. German students went to either Paris or Bologna.

⁸ In a letter to the *New York Times*, July 21, 1940.

ordinated to political necessity and hence their treatment of educational institutions differs in different countries in accordance with whether a country in the New Order is to be ruthlessly "Germanized"—this is true of Czechoslovakia and Poland—or whether, like Holland, Belgium, and Denmark, they are to be used by the Nazis as a showpiece. Thus, in Belgium, a German professor has been appointed as commissioner with power over the Rector of Brussels University and a scheme of interchange of professors has been adopted whereby Belgian culture can be mildly Germanized.

The Nazi policy toward Holland has been accommodating. The troops were instructed to behave politely and to seek the friendly co-operation of the people. But in the universities, as elsewhere, the proud spirit of the Dutch with their love of intellectual freedom soon forcibly expressed itself. The Nazis, on taking over the University of Leyden, dismissed as a Jew its famous and popular professor of law, Edouard Maurits Meyers. One of his colleagues, Rudolf Pabus Cleveringa, was appointed to take Meyers' class. Cleveringa took the opportunity to assail the Nazis in no unmis-takable terms and boldly stated that they had no authority other than that of superior force. His final thrust was to laud Meyers as "a noble and true son" of the Dutch nation. Professor Cleveringa was arrested and sent to a concentration camp. This action led to students' parades by way of protest and mass strikes were organized against the application of anti-Jewish regulations to the universities. The result was that Leyden University and the Technical Institute at Delft were both closed.

However divergent the policies may appear on the surface, the picture they present is perfectly clear. Whether the Nazis adopt hypocritically a policy of conciliation or whether they pursue a policy of naked brutality, the aim is the same—the subordination of all learning to the demands of the Germanic "Master race." Those who attempt to compare the German Führer with Napoleon might contrast the fate of Polish or Czech or Dutch learning at the hands of the Nazis with that resulting from the more civilized attitude of belligerent governments in former centuries toward the scholars among their foes. Even the cruel Duke of Alba took measures to defend the learned men of the towns in the Netherlands against which he was directing his armies, while in a later century French ships of war were instructed that if they came across the British explorer, Captain Cook, they were to give to him

all the help he needed. In the midst of the war with Napoleon, Sir Humphry Davy, the famous chemist and inventor of the miners' safety lamp, was awarded a prize for his contributions to science by the Institute of France, while the Convention had previously sent a deputation to England urging the adoption of the metric system.

The Nazi attitude toward learning is characterized neither by respect for knowledge nor by mercy for the aged. Moreover, we cannot take the Nazis seriously when, boldly rejecting mercy, they lay claim to the more masculine virtues of pre-Christian Europe. The Roman armies in 212 B.C. were instructed by their generals not to harm Archimedes and his family when Syracuse was attacked. As the old story relates, Archimedes, as he was drawing geometrical figures on the sand, was unfortunately killed by a soldier when he refused to answer the soldier's questions. The Roman Government gave the famous mathematician a public funeral and granted a pension to his children.

The Nazis consider such a policy to be a sign of weakness and unworthy of "Nordic" man, and armed with all the strength of modern technical invention, they desire to return to the tribal wars of extermination. Their treatment of the universities of their own country as well as the rest of Europe, is simply another illustration, to use Reinhold Niebuhr's aphorism, of their "synthetic barbarism."

Many attempts, with varying degrees of success and failure, have been made to analyse the essence of Nazism. The measure of their success depends on their degree of recognition that Nazism is both a remedy for the disease of a dying capitalist civilization and also an aggravation of that disease. This state of affairs is revealed in everything that the Nazis have done in each realm of Western culture: politics, economics, education, family life and religion. This means that what we see in Nazi Germany is one possible end product of our liberal democratic society. There, but for the grace of God, goes the whole of Western civilization.

A recent social survey, financed by the Carnegie Corporation and the Rockefeller Foundation, is devoted to a study of Hollywood. The author of its report points out in his preface that there is no profound difference between Hollywood and the rest of the American nation. Indeed, he remarks: "Hollywood is an index of our society," for "the aberrations of our culture are more vivid, more conspicuous, and more concentrated in Hollywood than in any other part of the country."

Bedford or Palo Alto. . . . A study of Hollywood casts the profile of American society into sharper relief."⁹

If we wish to see what American society is, as through a microscope, then we can look at Hollywood. If we would see what our society as a whole *might* become then we must look at the totalitarian countries.

Nazism, like Bolshevism, bases itself upon a clear recognition that we are in the midst of a complete revolution in man's understanding of his nature, of his place in society, and of his status in the universe. Hitler realized that the Western world faced a crisis, not only in its allegiance to political democracy, national self-determination, and *laissez-faire* economics, but at a deeper level. It faced a crisis in its faith. It is difficult for the typical Anglo-Saxon to understand the depths of hopelessness which, in the late twenties and early thirties of the present century, darkened the souls of millions of people of all classes in Central Europe. Whether American or British, the typical Anglo-Saxon has never really known what scepticism means for he has always been able *to believe in something* as ultimate even if it has only been scientific method or his nation's constitution. The story of Carlyle and Margaret Fuller, the young lady who informed him that she had decided to accept the universe, is typically Anglo-Saxon. Carlyle's reply: "By gad, you'd better," like the young lady's original affirmation, carried with it no doubt whatever that the universe *would* accept them both. Yet that it might not, was precisely the terrible fear that perplexed millions of Europeans. Hitler knew, moreover, how to take advantage of it. He knew that a completely disillusioned people is in the mood to believe in almost anything, if only it is presented with conviction and force. To use his own words from his book, *Mein Kampf*:

I knew what these people felt; it was the longing for a new movement that would be something more than a party in the ordinary sense.

To anyone who reads the pages of *Mein Kampf*, Hitler makes quite clear the steps whereby he arrived at his strategy and his conclusions. One thing cannot be too much stressed. It is that, although Nazism came into being largely as the antithesis to Communism, it was not, as so many Anglo-Saxons, whether politically left or right, vainly imagined, a conservative antithesis; on the

contrary, it was an equally revolutionary alternative. It was a daringly new combination of Nationalism and Socialism, worked out by a demonic genius who had the insight to interpret his immediate experience of the under-world of Vienna as a guide to the understanding of both the insufficiency of international Marxism as an answer to the immediate needs of the urbanized proletariat and the inadequacy of liberal rationalism as an answer to the thwarted lives of the lower middle classes.

Once Hitler had political power, he set out to accomplish his total revolution, no single feature of which can be understood except in relation to the whole.

In the sphere of economics the Nazis saw with perfect clarity that the increasing application of scientific discoveries and technical inventions to modern industry could only have one end and that was the emergence of a collectivized economy. To them the only questions—as, indeed, they are to anybody in any country who thinks at all about the subject—were: “Who shall control that economy?” and “For what purpose?” The Nazis saw that modern industrialized capitalism has become something quite other than the consumers’ democracy of early free capitalism. The early protagonists for capitalism had hoped that personal freedom in the disposal of his labour on the part of any worker might, in the long run, neutralize those inequalities resulting from the maldistribution of property which had been inherited from feudalism, and might thus eventually secure social stability and social justice. This was the highest flight of capitalist optimism. It was based on an erroneous conception of the implications of the technical aspects of industry and in particular on the false supposition that labour would more and more become the decisive factor in production. History has shown that the revolutionary effect of technical changes within industry, instead of materializing these Utopian hopes, has in fact actualized and aggravated the latent possibility which lurked in this unequalitarian legacy from feudalism.

The First World War did not check in Germany, any more than it did in the United States or Great Britain, the tendency for a neo-feudalistic attitude of protectionism to spread throughout the whole of capitalist economy. On the contrary, it quickened it up so that capitalism used all the means of a commercial and technical civilization to restrict competition by introducing tariffs, quotas, and trade barriers of a multitudinous variety. The

antagonism between, on the one hand, the expansionist tendencies of the application of scientific discoveries to production and modern methods of organizing and advertising to distribution and, on the other hand, the protectionist tendencies of invested capital, brought to an end the process of democratic equalization and international integration that had begun in the nineteenth century.

That was not all. While the technical development of industry forced it toward greater and still greater measures of internationalization—witness the growth of the cartels—the political development of Europe, under the influence of the notion that states should coincide with nations, led to the increasing number of national frontiers and therefore customs barriers. Leaving out Russia, there were sixteen sovereign states in Europe in 1875. By 1914 there were twenty-two and the peace-makers at Versailles, acting on Woodrow Wilson's declaration that "every people has a right to choose the sovereignty under which it shall live," had created seven more. Thereby Europe became a patchwork of political systems too jealous to co-operate and too weak to stand alone against Hitler's aggression. His solution to this madness was his "New Order" of economic *autarky*, many features of which, such as the abolition of the gold standard and the introduction of a multiple clearing system for Europe, were and are admirable.¹⁰ However, this "New Order" is to exist solely for the benefit of Germany and Nazi-minded members of the "Nordic Race." Its basic principle, to use the words of the Nazi Minister of Labour, Dr. Ley,¹¹ is that "a lower race needs less food, less clothes, and less culture than a higher race," an economic principle which in practice means that a German, for example, gets at least twice as much food as a Pole.

Such is Hitler's solution to the politico-economic aspects of Europe's—and subsequently the world's—problem. Hermann Rauschning has given¹² what he claims is the Nazi leader's own description of the specifically political aspect of his "New Order."

In the centre I shall place the steely core of a Greater Germany welded into an indissoluble unity. Then Austria, Bohemia, and Moravia, western Poland. A block of one hundred million, indestructible, without a flaw, without an alien element, the firm foundation of our power. Then an Eastern alliance: Poland, the Baltic states, Hungary, the Balkan states, the Ukraine, the Volga

¹⁰ See Germany's *New Order* by Duncan Wilson (Oxford, 1941), p. 10.

¹¹ Quoted. *Ibid.*, p. 22.

basin, Georgia. An alliance, but not of equal partners; it will be an alliance of vassal states, with no army, no separate policy, no separate economy. I have no intention of making concessions on sentimental grounds, such as re-establishing Hungary, for example. I make no distinction between friends and enemies. The day of small states is past, in the west as well. I shall have a Western Union too, of Holland, Flanders, Northern France, and a Northern Union of Denmark, Sweden and Norway.

These economic and political implications of the Nazi creed have been worked out with such skilful adaptation to the circumstances of the moment that many have been led to believe that the Nazis are entirely opportunist and that their creed is one of complete intellectual and moral nihilism; in other words, that it is not a creed at all. Rauschning himself has enunciated such a view in his book, *Germany's Revolution of Destruction*.¹³ One can only declare that Rauschning in his day of disillusionment with Hitler is no more accurate in his analysis of the nature of what a more profound writer, Aurel Kolnai, calls *The War against the West*,¹⁴ than he was in the days when he could regard the Nazi Führer as the embodiment of his hopes. The aim of the Nazi crusade is not simply conquest for the sake of power and glory but for the propagation and creation through conquest of an entirely new type of civilization resting on a complete view of man's nature and destiny in the world.

The Nazi movement, in short, is a movement with a mission. As the Spanish philosopher, José Ortega y Gasset, wrote with prophetic insight three years before Hitler came to power:

All previous civilizations have died through the insufficiency of their underlying principles. That of Europe is beginning to succumb for the opposite reason. In Greece and Rome it was not man that failed, but principles. The Roman Empire comes to an end for lack of technique. When it reached a high level of population, and this vast community demanded the solution of certain material problems which technique only could furnish, the ancient world started on a process of involution, retrogression, and decay. But to-day it is man who is the failure, because he is unable to keep pace with the progress of his own civilization.¹⁵

Basic to the whole of Nazi theory and practice is a clear and definite view of man. It is more than a "biological" view of man or a "psychological" view of man, or a "sociological" view of man, or the whole gamut of "logical" views of man taken together. It

¹³ London, 1939.

¹⁴ London, 1938.

¹⁵ Pp. 99-100 of the English translation (*The Revolt of the Masses*, London, 1932) of *La Rebelion de las Masas* (Madrid, 1920).

is a totalitarian view of man which in effect means that (in the true sense of that much-abused term) it is a *spiritual* view of man since it is that which conditions but is not conditioned by the empirical knowledge of man given in the separate sciences. It colours therefore all the Nazi's ideas, feelings and actions.

On this spiritual plane alone can be discerned the real nature of the Nazi claim. As in other countries, the Fascist appeal is a protest against the self-sufficient individualism of our bourgeois culture, and it asks young men and women "to give, to serve, to devote themselves, to make sacrifices. In return, it offers—especially to those who feel isolated and bewildered (and who doesn't?)—unity and strength."¹⁶

Nowhere is this truth revealed more clearly than in the realm of education. Indeed, the Nazi makes, and, as we shall see in the next chapter, so does the Marxist, very much the same criticisms of liberal scientific individualism that have been urged in the previous chapter. It is when we consider the positive solution and the kind of university which results that we part company. These criticisms can be epitomized as follows: As against the liberal-scientific-individualistic *Weltanschauung* the Nazi rightly claims that

- (a) Knowledge is not presuppositionless.
- (b) Knowledge serves a purpose other than itself.
- (c) Knowledge is not ultimately objective but conditioned.
- (d) Knowledge in the last resort is not atomic but is a unity.

(a) The Nazi is right when he remarks with Max Planck:¹⁷

It is said that science has no pre-conceived ideas: there is no saying that has been more thoroughly or more disastrously misunderstood.

He is right when, with Herr Rust, the Minister for Education in the Reich, he goes on to say that he

has recognized the fact that to construct a system of knowledge without pre-suppositions and without certain value judgments as its foundation is totally impossible.¹⁸

However, the Nazi is wrong and profoundly wrong when he identifies the presuppositions of knowledge with the contents of Hitler's head and defends such a fantastic view by the equally

¹⁶ *Why They Join the Fascists?* by Lionel Birch (London, 1937), p. 11.

¹⁷ *Philosophy of Physics* (E.T., London, 1936), p. 112.

¹⁸ Quoted by Sir Richard Gregory in *Science in Chains* (London, 1941), p. 15.

fantastic contention that Hitler is the true interpreter of the German soul.

(b) The Nazi is right when he maintains that knowledge must and does serve some purpose greater than itself. He is right, when, with Hitler, he says:

The simple question that precedes every scientific activity is: who is it (who) wants to know something, who is it (who) wants to find out how he stands in the world around him?¹⁹

He is right when he adds with Theodor Wilhelm:²⁰

Not mere knowledge but the ability to decide—the very fact that I make up my mind to do this and not that is the surest path to truth, the most reliable guide to the nature of things.

He is right when, with Ernst Krieck, he can

grant the principle of objectivity in scientific research provided it represents real sincerity. When, however, objectivity is “a pretension to absolutism of scientific perception” and “existence apart from living foundations” then it must be repudiated as representing the “arrogance of a super human being.”²¹

The Nazi is certainly right in pointing out that the worship of objective knowledge has led the Western mind into such a plight that, to use the graphic words of Werner Sombart:

It is not the contemplation of the *thing* that lures men on, not the instinctive emotional comprehension of reality that they seek; nor is it the joy of creation or its effect that is dear to their heart. What is wanted is scientific “knowledge”; that is, an elaborated system of ideas. It is no longer the world and mankind that exercises the charm, but the “theory” of the origin of the world and of men; not the flowers but botany, not the animals but zoology, not the human soul but psychology—these are the allurements.²²

But the Nazi is wrong, profoundly wrong, in identifying the end of knowledge with the prestige of a particular racial group and the

¹⁹ Quoted by Rauschning, *Hitler Speaks* (London, 1939).

²⁰ Quoted (p. 212) by G. F. Kneller in *The Educational Philosophy of National Socialism* (New Haven, 1941) from *Internationale Zeitschrift für Erziehung*, Vol. 5 (1935), p. 126.

²¹ Quoted by Kneller, *loc. cit.*, p. 222, and see the whole of this section.

So deeply has the cult of objectivity infected Anglo-Saxon thought that a shrewd thinker like Kneller can cite this and other quotations expressing the Nazi rejection of objectivity and yet at the same time claim in the preface of his admirable book that: “This investigation is intended to fill a gap in liberalistic, objective literature on National Socialist educational philosophy. . . . It is an attempt to present the situation as it is, seen in its own light and from its own point of view. . . . There is no other purpose than to present the facts of the case” (p. 2). But to give a “liberalistic, objective” account of Nazism cannot be, in the very nature of the case, an attempt “to present the situation seen in its own light and from its own point of view.”

²² P. 36 of the English translation (*A New Social Philosophy*, Princeton, 1937) of his *Deutscher Sozialismus*.

power of its governing oligarchy²³ as when with Sombart he can continue and say:

For us there is only one aim—Germany. For the sake of Germany's greatness, power and glory, we will gladly sacrifice every "theory" and every "principle," whether it bears a liberal or any other stamp.²⁴

The Nazi is equally wrong when with Krieck he can answer the question, "What is the purpose of university education?" by replying "It is . . . the heroic science of the soldier, the militant and fighting science."²⁵

The Nazi is right in perceiving that the practical counterpart to the denial of the ultimate objectivity of all knowledge is that the university cannot be "neutral" but that it must and, in fact, does set out to produce a type, be that type the scholar-saint of the medieval university, the balanced sage of the Renaissance tradition, the gentleman-Whig of seventeenth-century England or the man of affairs of the contemporary American university. But he is wrong, profoundly wrong, when he allows society to go beyond its rightful claim to perpetuate itself in the type to the point where it refuses to allow the individual to exercise his personal freedom by growing beyond the type to the stage where he can criticize the tradition that has produced him.

(c) The Nazi is right in contending that all human knowledge is conditioned by non-rational factors such as home, school, nation, race and the like. A writer, as little prone to a Fascist outlook as J. D. Bernal, has shown that this contention is aptly illustrated by the national character of English science since the seventeenth century:²⁶

²³ Contrary to what is taught so often in liberal democratic countries by press, pulpit and politicians, the Nazi movement has not made the State the end of all existence. Hitler has clearly expressed the gist of the matter on numerous occasions; in particular note his speech celebrating the fourth anniversary of his advent to power (January 30, 1937)—"the starting point of National Socialist teaching is not the state but the 'people' (*Volk*). The state is not an end but a means; the end is the 'people' (*Volk*)."

²⁴ *Ibid.*, p. 152. A tragic symbol of this prostitution of the great tradition of German scholarship in its oldest university, Heidelberg, is recorded by Eva Lips in *What Hitler Did to Us* (London, 1938):

" 'To the Living Spirit,' says the dedication carved above the door of the University building, a gift of former Ambassador Schurman. At that time the statue of Pallas Athene still kept watch over the entrance gate. In January of 1936, however, the daughter of Zeus was removed, and a Nazi eagle enthroned in her place as guardian angel of the house of learning. 'To the German Spirit,' says the new dedication."

²⁵ Quoted from *L'École Hitlerienne et l'Étranger*, 1937, by J. D. Bernal in *The Social Function of Science* (London, 1939), p. 218.

²⁶ *Ibid.*, p. 197.

It is predominantly, as contrasted with German or French science, practical and analogical. . . .

- What has given such enormous success to English science is largely just this practical predilection and robust common sense. Nature, at any rate, up till very recently, generally turned out to operate at least as simply as a human workman, and those who attributed to it mysteries and subtleties merely tangled themselves in their own ingenuity. A defect of the English is their almost complete lack of systematic thinking. Science to them consists of a number of successful raids into the unknown. It presents no coherent picture; theory is looked on suspiciously and speculation not encouraged. These disadvantages are more apparent now than they were in the last century.

But the Nazi is wrong, profoundly wrong, when he gives up the attempt to achieve a truth that is more than British truth or German truth or proletarian truth or bourgeois truth and rests self-satisfied in his Nordic nonsense. I am not referring to Nazi ignoramuses, but to scholars with an international reputation to lose. Werner Sombart, for example, has perpetrated the following confused medley of biological, psychological and sociological considerations:

The psycho-physical make-up of a person essentially determines his ability. It determines whether he thinks clearly or confusedly, whether he is equipped with the power of insight or the power of abstraction, whether or not he possesses a talent for form, and so forth. For example, other things being equal, the sharp Jewish intelligence of a Ricardo or a Marx would naturally produce a different economics from that produced by the "deep, German obscurity" (as Fichte called it) of an Adam Muller or a Knies or a Schmoller.²⁷

Sombart's remarks, however, are the embodiment of intellectual sanity when compared with the monstrosities of Johannes Stark—again it is no ignoramus but the President of the Physikalisch-Technischen Reichanstalt at Berlin and an experimental physicist whose name will go down to posterity as the discoverer of the "Stark Effect," for which in 1919 he received the Nobel Prize for Physics. In a famous letter to *Nature*, the world's leading scientific journal, he attacked Jewish physicists in the following deplorable terms:

When in what follows I speak of two principal types of mentality in physics, my observations are founded on experience . . .

The pragmatic spirit, from which have sprung the creations of successful

²⁷ In his contribution to a testimonial volume in honour of the sixtieth birthday of Dr. Hjalmar Schacht. See p. 19 of the English translation, *Weltanschauung, Science and Economy* (New York, 1932).

discoveries both past and present, is directed towards reality, its aim is to ascertain the laws governing already known phenomena and to discover new phenomena and bodies as yet unknown. . . .

The physicist of the dogmatic school operates in quite a different manner in the field of physics, he starts out from ideas that have arisen primarily in his own brain, or from arbitrary definitions of relations between symbols to which general and so also physical significance can be ascribed. By logical and mathematical operations he combines them and so derives results in the form of mathematical formulæ. . . .

The relativistic theories of Einstein, which are based on an arbitrary definition of space and time co-ordinates or their differentials, constitute an equally obvious example of the product of the dogmatic spirit. Another example of this kind is the wave-mechanical theory of Schrödinger. By an amazing feat of physico-mathematical acrobatics he obtains as a final result first a differential equation. He then asks what sort of physical significance the function that occurs in his equation may have, and for this he makes the suggestion according to which the electron is arbitrarily smeared in a large spatial region round about the atom. In characteristic fashion, however, other dogmatic physicists (Born, Jordan, Heisenberg, Sommerfeld) give to the Schrödinger function another dogmatic significance, contrary to fundamental laws of experience. They make the electron dance round the atom in an irregular manner and allow it to act externally as though it were simultaneously present at every point round the atom with a charge corresponding to the statistical duration of its sojourn at each point. . . .

I have taken the field against the dogmatic spirit in Germany because I have been able to observe repeatedly its crippling and damaging effect on the development of physical research in this country. In this conflict I have also directed my efforts against the damaging influence of Jews in German science, because I regard them as the chief exponents and propagandists of the dogmatic spirit.

This reference brings me to the national aspect of the mental outlook of men of science in research. It can be adduced from the history of science that the founders of research in physics, and the great discoverers from Galileo and Newton to the physical pioneers of our own time, were almost exclusively Aryans, predominantly of the Nordic race. From this we may conclude that the predisposition towards pragmatic thinking occurs most frequently in men of the Nordic race. If we examine the originators, representatives and propagandists of modern dogmatic theories, we find amongst them a preponderance of men of Jewish descent. If we remember in addition that Jews played a decisive part in the foundation of theological dogmatism and that the authors and propagandists of Marxism and communistic dogmas are for the most part Jews, we must establish and recognize the fact that the natural inclination to dogmatic thought appears with especial frequency in people of Jewish origin.²⁸

²⁸ *Nature*, Vol. 141, pp. 770-2. Julian Huxley has made the shrewd suggestion that since, e.g., a quarter of the German Nobel Prize-winners have been Jews, whereas Jews make up only 1 per cent. of the pre-Nazi German population, we have in Stark's outburst an instance of the German sense of inferiority. (See pp. 16-17, *Argument by*

(d) The Nazi is right in his protest against the chaos of liberal atomism whereby the subjects of the university curriculum are separated from each other into neat departments of specialized knowledge as completely as walls separate classrooms. He is right moreover, in seeking to achieve a synthesis of the different specialisms in terms that give a prominent place to political factors and concepts by showing the political implications of the different realms of specialized knowledge.²⁹

But the Nazi is wrong, profoundly wrong, in seeking to unify all realms of knowledge by making them subject to political categories and purposes and by creating a new scholasticism which puts the whole of knowledge into a totalitarian straight-jacket. Thus, in the sphere of educational theory, Ministerialrat Dr. Haupt has to explain certain similarities which he claims to find between Nazi educational forms and ideals and "the educational systems of the ancient Greeks and of the modern Anglo-Saxon peoples." To do this, he makes the astounding assertion that

These similarities National Socialism traces back to those Nordic racial elements which are the common inheritance of these peoples and which have so largely determined their history. It is merely a particular example of a universal law of nature; that similar or kindred characteristics must evolve similar or kindred forms.³⁰

Similarly, biochemistry is brought into the net when, to prove that the consumption of pork accounts for the alleged superiority of the Aryan "race," R. Walther Darre publishes a volume solemnly entitled, *Das Schwein als Kriterium für nordische Völker und Semiten*. The history of religion is not immune and so we get a pretentious volume, *Geschichte auf rassischer Grundlage*, by Johann von Leers, a fantastic correlation of meteorology, ethnic origins and the emergence of monotheism. To give his own words:

Not a tribal idol like Jahweh-Jehovah, not a "Revelation" which nobody can verify, but a thoughtful insight of fisherfolk, peasants and seafarers into the work of God in this world, was the first realisation of the Divine, the original Nordic Monotheism, thousands of years before a people of Israel ever existed.

This *Weltanschauung* could only have come into existence where the change between light and darkness, between the long winter night and the brightness

²⁹ I am much indebted to Professor Paul Tillich for the clarity with which he has straightened out for me the relation between knowledge, the university and politics. See his address to the Teachers' Union of New York University, *Has Higher Education an Obligation to Work for Democracy?* published in *Radical Religion* (New York), Vol. 5, p. 12.

³⁰ *Das Schwein als Kriterium für nordische Völker und Semiten*.

of the sun was especially vivid, that is, in the far North. It is from this area that these peoples must have been scattered one after another.³¹

It is wellnigh impossible for the student with any appreciation of the debt that Western civilization owes to German scholarship, to have patience with these aberrations of the human intellect. I am thinking not only of the debt that learning owes to German scholarship for the painstaking thoroughness which has made possible such systematic arrangement of the discoveries of investigators of all nations as we have in chemistry, for example, in the invaluable *Handbuch der organischen Chemie* of Friedrich Konrad Beilstein, or in sociology the work of Max Weber or in theology the work of Ernst Troeltsch. That is a fact which the youngest research student soon finds out. What I have in mind is the much less frequently recognized debt that science and learning owe to German scholars for the original discoveries that have set the human mind blazing new trails. For example, in mathematics Gottfried Wilhelm Leibnitz first enunciated the principles of the differential calculus. Carl Friedrich Gauss founded at Göttingen the first special laboratory for the study of terrestrial magnetism and incidentally made so many discoveries in the field of magnetic theory that the process whereby the ships of the United Nations are rendered invulnerable against German magnetic mines is called "de-gaussing." Non-Euclidean geometry also begins with Gauss, and although a Russian, Nicholas Lobachevski, and a Hungarian, John Bolyai, did pioneer work of first-class importance in this field, it was Gauss' pupil, Georg Friedrich Bernhard Riemann, another German, who, quite independently, in his dissertation, *Über die Hypothesen welche der Geometrie zu Grunde liegen*, inaugurated the more profound and generalized discussion. Two Heidelberg professors, Gustav Robert Kirchhoff and Robert Wilhelm Bunsen, laid the foundations of spectrum analysis and revolutionized not only inorganic chemistry but astro-physics by their discovery that chemical constitution determines the wavelength of the radiations given out by a heated body. Organic chemistry dates from Friedrich Wöhler's synthesis of urea and the demonstration by his colleague in the University of Giessen, Justus von Liebig, that a complex group of atoms—the so-called "radicle"—is capable, chemically speaking, of behaving like an element. The list is interminable, Johannes Muller and experi-

³¹ Pp. 15-16, *loc. cit.*, quoted (p. 11) of *History on a Racial Basis* (Friends of Europe, Publication No. 42, London, 1936).

mental physiology, Max Schultze and histology, Karl Marx and socio-economic history, Sigmund Freud and psychoanalysis, Max Planck and the quantum theory—all did pioneer work of unsurpassed merit and set investigation in the field of their respective subjects on completely new paths.

The only charitable thing left to the student, after considering the plight into which contemporary German scholarship has fallen, is to come to the conclusion that other Nazi scholars besides L. G. Tirala, the professor of "Race-Hygiene" at Munich, write their books in the following fashion:

I came home and there lay the book before me. Every chapter was there, nothing wanting, on the table. Unconsciously the thing had pieced itself together and the inner law of the book crystallises itself into a form such as presents itself before the astonished eyes of the research worker.

This could never have happened if the boldest dreams of the German people had not come true through the deeds of a man whom Houston Chamberlain longed for and prophesied: "the man with the lion heart"—Adolf Hitler.³²

As one primarily concerned with the natural and the social sciences in their bearing on the problem of university education I have taken examples from these spheres of learning to indicate the abyss into which German scholarship has fallen. Had I approached the matter from the side of literature or the arts the same conclusion would have forced itself upon us. After a close association with the life and culture of Nazi Germany, Joseph C. Harsch sums up his judgment on contemporary art in Germany in the following terms:

All art in Nazi Germany is intended to encourage primitive emotions. It glorifies war, manliness and femininity. It encourages large families. It places such an emphasis on realistic sex as I have not observed in any other European country. Behind it is a new Nazi definition of the distinction between morality and immorality which breaks through the traditions of Christian morals and Western civilization. It involves basically the encouragement by every means possible of what is called *Gesunde Erotika*, or "healthy eroticism." By "healthy eroticism" they mean any eroticism which (a) increases the birth rate and/or (b) pleases the soldier home from war or the S.S. man off duty.³³

In drama, too, everything must be subordinated to the political demands of the moment. Thus, Blume's play dealing with the

³² In the preface to his *Rasse, Geist und Seele* (Munich, 1935), quoted from p. 6 of *Race, Mind and Soul*, Friends of Europe Publications, No. 40 (1936).

³³ *Patterns of Growth* (New York, 1936), p. 2.

Teutonic knights was rewritten (without his permission) in 1934 so that Lithuania and not Poland was depicted as the enemy of Germany. In that year Hitler was wooing Pilsudsky and so the standards of drama and history alike were set aside in the name of political necessity.³⁴

Alternatively we could have taken the Fascist universities of Italy and the fate of learning under Mussolini as our example. Such a procedure would have brought us to the same inescapable conclusion: the Fascist-Nazi remedy for the chaos into which liberal democratic learning has fallen is worse than the disease. To another proposed solution, that of the Bolshevik university, integrated on the basis of a Marxist synthesis, let us now turn.

³⁴ For an authoritative and documented account of the fate of literature under the Nazis, see *German Literature Through Nazi Eyes*, by H. G. Atkins (London, 1941).

Note to the Reader

The manuscript of this chapter was written before the Nazi army invaded the Soviet Union. The events of the last three years have not led to the emergence of any new facts which lead me to qualify my conclusions. In a democracy, I see no reason why my admiration for the valiant efforts of the Russian people or my conviction that the Soviet Union must play a leading role in peace-making, should cause me to temper my criticism of the Soviet conception of the aim and purpose of a university. That is why the following chapter—in spite of the fact that the Soviet Union is one of the United Nations—remains, apart from one or two minor revisions, as it was written.

A. S. N.

(V)

THE MARXIST SYNTHESIS AND THE SOVIET UNIVERSITY

"Where Karl Marx is wrong is more important than where everybody else is right."

MAX WEBER.

IN the last chapter we examined the Nazi conception of a university as a possible remedy for the ills that beset the liberal democratic university. We came to the conclusion that although the latter is so out of touch with reality that it thinks that it succeeds in teaching science without metaphysics, facts without values, and history without propaganda, yet this situation is not remedied by the teaching of science wedded to Nazi metaphysics, of facts with a Nazi evaluation and of history according to the dictates of Nazi propaganda.¹

However, the Nazi remedy for its fundamentally sound diagnosis of the crisis in the liberal conception of knowledge and the role of the university in modern society is not the only one that is vehemently presented for consideration in the world of to-day. The Marxist critique of liberalism in the realm of learning has had, and continues to have, much greater prestige in the Anglo-Saxon world than its Fascist equivalent. There is ample justification for such prestige if only in the fact that Karl Marx attacked liberalism in economics, politics and learning alike, decades before anyone else thought of so doing. To the typical businessman, statesman, or scholar in the safe and prosperous years of the latter half of the nineteenth century, it seemed obvious that as long as governments and Churches minded their own business, then

industry and commerce would continue to prosper under the control of the capitalist and the guidance of the engineer, until all the world was as contented and happy as the suburban residents of Manchester or Philadelphia.

What was noteworthy about Marx was not the incidental prophecies that he made. Many of these, such as his forecast that the middle classes would eventually disappear and that the first proletarian revolution would take place in a highly industrialized country, have already been disproved by events. Marx's greatness was revealed in the insight which led him to place a huge question-mark on the easy-going confidence with which his contemporaries faced the problems of a capitalistic civilization. Undoubtedly the most striking vindication of his prophecies was the emergence of Fascism at that stage in the development of capitalism when it became incompatible with political democracy. I do not wish to suggest that this interpretation of Fascism—still current in orthodox Marxist circles—is completely adequate, but I do assert that any interpretation that does not include such an analysis is more gravely in error than the interpretations of Marxists such as Palme Dutt,² or semi-Marxists like H. J. Laski,³ who see nothing else.

For generations Marx was either ignored or ridiculed in academic circles. For example, J. S. Nicholson, the Scottish economist, as recently as 1921, could dismiss Marxism with the contemptuous words:

There can be no real progress in any science, economic or other, unless exploded fallacies are allowed to disappear into the limbo prepared for vanities that have had their day.⁴

Similarly, among less well-informed writers, Marx is dismissed, as for example in H. G. Wells' revealing autobiography, as "that stuffy, ego-centred and malicious theorist."⁵

However, as the crisis of Western civilization has deepened during the last decade, Marx has received increasing recognition, and it is no exaggeration to say that he, more than any other single writer, has changed and is changing the contours of modern thought. Thus R. H. Tawney, in his inaugural lecture as Professor of Economic History in the University of London, paid his tribute to the imprint that Marx has made on historical writing:

² E.g. in *Fascism and Social Revolution* (London, 1934).

³ E.g. in *The State in Theory and Practice* (London, 1935).

⁴ *Economic Journal*, Vol. 31, p. 229.

⁵ *Experiment in Autobiography* (London, 1934), p. 180.

Marx opened a new chapter in historical discussion, which, two generations after his death, is still unclosed. His hints have become books by writers unconscious of plagiarism.⁶

Tawney's praise is not too extravagant. J. M. Keynes pointed out⁷ some years ago that there is not a single reference to the price revolution of the sixteenth century in the *Cambridge Modern History*. To contrast such a complete failure to take account of the economic factors in history with the stress laid on them in recent historical writing is an indication of how profound the influence of Marx has been.

In economic science proper the same revolutionary evaluation of Marxist thought has taken place. Thus one of Keynes' distinguished followers, Joan Robinson, maintains that

if there is any hope of progress in economics at all, then it must be in using academic methods to solve the problems posed by Marx. . . . The orthodox economists have been much concerned with elegant elaborations of minor problems, which distract their pupils from the uncongenial realities of the modern world. . . . Marx's intellectual tools are far cruder, but his sense of reality is far stronger and his argument towers above their intricate constructions in rough and gloomy grandeur.⁸

Similarly, A. D. Lindsay writes of Marx' influence on political theory:

The more debatable doctrine of the class war has at least shown the sterility of the earlier political theory which thought only in terms of the individual and his state.⁹

To take an illustration of Marx' influence from another field, we might quote the verdict of the Professor of Historical Theology in Yale University, R. L. Calhoun, who, writing of the class struggle, remarks that:

It is an obvious fact though a more complex one than the literature of revolt might lead one to believe. By insisting on its basic importance for hard-headed social thinking and action, Marxist thinkers have made it impossible to content ourselves any longer with general appeals to human brotherhood and the common welfare.¹⁰

Excluding mathematics and the natural sciences, Marx' imprint has been made on the whole of modern scholarship. Sociology, literature, philosophy, political theory and law are all different because Marx lived and wrote. That is why we must take seriously the Soviet universities, since, based as they are on Marxism, they

⁶ *Economica*, Vol. 13 (London, 1932), p. 6. ⁷ See *Economica*, Vol. 7 (N.S.), p. 358.

⁸ *An Essay on Marxian Economics* (London, 1942), pp. 3 and 115.

⁹ In his introduction to *Historical Materialism and the Economics of Karl Marx*, by B. Croce, E.T. by C. M. Meredith (London, 1914).

¹⁰ *God and the Common Life* (New York, 1935), p. 229.

offer, unlike the Nazi universities, a live option as a possible solution to the dilemma in which the liberal democratic university finds itself.

Soviet education, since the Bolshevik Revolution in 1917, has changed with such startling rapidity that it is difficult to believe that the system has been based on any permanent set of premises. Soon after the Revolution there was a determined effort, led by Shulgin, to eliminate schools and colleges altogether. He argued that "the street teaches, the factory teaches and the party teaches; therefore school was redundant."¹¹ Another influential group insisted that since all children belonged to the State, they should be brought up in State institutions, a principle which in practice means that the school becomes the "home." Neither theory was accepted in its entirety but each had its calamitous effect.

More destructive still to sound education was the theory that the schools should be run by the pupils and the universities governed by the students. However, by 1928, when the first Five Year Plan was launched, these aberrations had been considerably toned down and, by 1932, teachers in both schools and universities assumed charge of the curriculum. Yet these and all subsequent changes were but surface ones, for the system derived its fundamental line of direction from Marxist theory. Hence an examination of the Marxist conception of a university involves a consideration of whether Marxism should be adopted as an alternative to the liberal-scientific *Weltanschauung*.

Marxism is both a development of and yet a protest against liberal thought. Like Nazism, Marxism maintains that knowledge must serve a social purpose and that knowledge is socially conditioned, but like liberalism, Marxism believes in the possibility of the universalization of knowledge through the development of science. Indeed, the word, "science," is a key to the understanding of the whole Marxist position. Marx and Engels called their system *Scientific Socialism* to distinguish it from that advocated by their opponents in the socialist ranks, whom they dubbed *Utopian* socialists since, argued Marx and Engels, these reformers were more concerned with describing the future socialist state than in discovering a method of achieving it whereas, as *scientific* socialists, they (Marx and Engels) considered that it was less important to draw up a detailed description of Utopia than to devise a plan of

¹¹ Quoted by Beatrice Harrison in an article *Soviet Education; Its Phases and Purposes*

getting there. For this reason they frankly adopted the basic methodological principle of the natural sciences and applied it to history.¹² In their hands it became: if we wish to precipitate a successful revolution when the appropriate moment comes, we must examine past revolutions and then hitch ourselves consciously to the historical process. They quite deliberately precluded, so they thought, any condemnation of capitalism on ethical grounds. In their judgment they were simply being "scientific" since they maintained that they were predicting the future of the economic system through their capacity to understand it in the present in the light of the past. In the words of one of their modern devotees, J. B. S. Haldane:

It is, however, of the utmost importance to realise that though Marx and Engels thought Capitalism was unjust, their reason for believing that it should come to an end within a relatively short time was not because it was unjust, but because it was not working.¹³

Upon this foundation Marxist thinkers have worked out dialectical materialism as a complete philosophy of life. It is totalitarian in two senses: it has an answer to every question and the answer is one to be imposed upon all who claim to believe the theory, or who live under Soviet jurisdiction.

It is in its optimism that Bolshevism is most closely akin to liberalism. However, whereas the liberal rationalist is confident that if only man will rid himself of the dead weight of superstition and tradition then there are no limits to what he can accomplish by pursuing the methods of the natural sciences in controlling both nature and society, the Marxist believes that this is only possible if science itself is first cleansed of its bourgeois associations. Thus to use the ambitious words of an Irish Marxist:

The great contribution of Marxism is to extend the possibility of rationality in human problems to include those in which radically new things are happening for . . . Marxists have some way of analysing the development of affairs which enables them to judge far in advance of scientific thinkers what the trend of social and economic development is to be.¹⁴

It is this over-confidence in the adequacy of their analysis that is largely responsible for the failure of the Communist Parties seriously to affect the thinking of the working classes of the Anglo-Saxon world. Looking back over a personal acquaintance with

¹² As Marx in the original preface to *Capital* remarks:

"The final purpose of my book is to reveal the economic laws of motion of modern society."

¹³ *Marxist Philosophy and the Sciences* (London, 1938), p. 170.

¹⁴ J. D. Bernal in *The Social Function of Science* (London, 1929), p. 414.

orthodox Communists that has lasted more than a decade, one fact emerges clearly and that is their everlasting optimism in the face of all facts to the contrary. The eternal cry of the Marxist prophets has been that capitalism is collapsing because of its own inner contradictions (whatever that means) and that therefore the successful revolution is "round the corner." What has been most astounding is the persistence of such optimism in the face, on the one hand, of the increasing hold of liberal democracy in the Anglo-Saxon countries exactly at the times when capitalism has been obviously in a state of crisis and, on the other hand, of the continual defeat of Communist Parties or policies as evidenced in the political success of Fascism on the continent of Europe. Thus, in the early thirties, in Germany it was the Nazi Party that increased in strength as the economic depression got worse. In Great Britain it was a "National" government, pledged to social reconstruction on the basis of orthodox capitalism, that was swept into office in 1931.¹⁵ In the United States the lesson of the Great Depression to the masses, judging from the enthusiastic election of Roosevelt to the Presidency in 1932, was not that capitalism was doomed and its complete removal necessary, but that, in terms of a "New Deal," it could be made to work properly.¹⁶ Subsequent Presidential elections have confirmed this diagnosis. The vote for the Communist candidate fell from 102,991 in 1932 to 80,150 in 1936 and to 46,251 in 1940.

There are many reasons that can be adduced to account for the failure of Communist teaching to grip the minds of the working classes of the world. One basic cause which is relevant for our purpose here is that the typical Marxist exponent is never as rational as befits an exponent of scientific socialism. Unlike Hitler, he has used his opportunities for propaganda as the immediate means of

¹⁵ The verdict of the German historian of the British Labour Movement is as apt as it is emphatic:

"The critical years, 1930-1932 were, indeed, putting the Communists to the crucial test, and they were found wanting. At the General Election in 1931 their twenty-six candidates polled the grand total of 74,824 votes, an average of less than 3,000 votes for each candidate. From these facts we draw the lesson: If a Communist Party, after ten years of ardent propaganda, is unable to make headway at a time when 'gradualism' is visibly falling into discredit, when the feeling is widespread among organised Labour that capitalism is on the decline, and when unemployment is putting 20 to 25 per cent. of the insured workpeople on the 'dole', then the conclusion is inescapable and the argument irrefutable that there is no hope for the Communist Party in Britain."—Max Beer in *A History of British Socialism* (London, 1940), p. 437.

¹⁶ For an illuminating account of why the U.S.A. is sympathetic to the Soviet experiment see chapter vii of *The Crisis of Capitalism in America*, by M. J. Bonn (New York, 1939) and note (pp. 104 f.) why Communist propaganda has at the same time

outlet for the emotions, hates and fears of the moment. Hence his use of verbs like "smash," "destroy," "exterminate," etc.—a vocabulary that, to the psychologist, is of profound significance. This failure of the Communist to use his reason to control his emotions has often blinded him to any real understanding of the way in which the mind of the typical skilled artisan moves. This was aptly illustrated when, in the coal-mining village in England where I was brought up, I listened on one occasion to a Communist speaker launch forth an eloquent attack on Nazis and Fascists abroad and capitalists and trade unionists at home. The orator closed his speech by a dramatic appeal to his audience of stolid North-country men "to smash capitalism for, in the words of the Communist Manifesto, you have nothing to lose but your chains." There was a moment's pause and then the crowd broke into jeering laughter which ended the meeting when a quick-witted and uninhibited collier shouted back, "B——y liar, 'aven't we gor ah Mary's pianner 'alf paid for?"

The failure of that speech to move his hearers to an endorsement of the Communist case lay in the simple fact that it was one long expression of a curious combination of an unconscious resentment against the "capitalist classes" and a conscious belief that Marxism is a complete explanation of the whole of existence.¹⁷ The speaker like the vast majority of Communists, but unlike Hitler, had not accepted Nietzsche's dictum that the man who acts on his resentments is not the superior man; and by superior man Nietzsche meant, as Hitler does, the man who has the capacity to overcome others. That is one secret of Hitler's success in rising to power in Germany and in overrunning one country after another. In a word, he is rational in his hates, and in his action and strategy he has a detachment that should be the envy of less successful politicians. For Hitler, hate is not an emotional indulgence that satisfies the unconscious desire of the moment at the expense of more important aims of the future. Rather it is a tap that can be turned on and off in accordance with the required strategy of the moment. When his policy decreed that Czechoslovakia was the enemy, then the faucets of hatred were turned on the Czechs, and the Poles were left alone.¹⁸

¹⁷ As one of the other listeners remarked to the speaker as he made his departure, " 'T trouble with thee, owd chap, is that tha thinks that tha knows it all."

¹⁸ This skilful use of hatred was co-ordinated throughout the whole realm of human contacts. See the illustration of the Nazi's re-writing of Blume's play in the previous chapter.

Unlike the Nazis, the Communists are so much the children of rationalism that by hook or by crook they will insist on attempting to explain all their policies as consistent with both past actions and present theory. The oscillations of Communist Party strategy over the last few years furnish numerous illustrations of this self-immolation on the altar of consistency, for, no matter the cost, all policies and all actions must be demonstrated as consistent.

In the summer of 1939, I was assured repeatedly by Communists in England that any possibility of a rapprochement between Nazi Germany and Soviet Russia was impossible. Such an idea, I was told, was an invention of the capitalist Press. Eventually, when the Nazi-Soviet pact was signed and the photographs of Stalin shaking hands with Ribbentrop appeared in the Press, all that my still-believing acquaintances could say was that Stalin *must* have some good reason for doing what he did. One could only comment to them: "Now, as never before, you realize what the writer of the Book of Job meant when he exclaimed 'Even though he slay me yet will I trust him.' "

Soon after war finally broke out, Mr. Harry Pollitt, the Secretary of the Communist Party of Great Britain, wrote the following words: to stand aside from this conflict, to contribute only revolutionary-sounding phrases while the 'Fascist beasts ride roughshod over Europe, would be a betrayal of everything our forebears have fought to achieve in the long years of struggle against capitalism.

However, before the end of the month, the Communist Party of Great Britain, in conjunction with the other constituent parties of the Third International, reversed this interpretation of the war situation in obedience to orders from the Kremlin. This view of the matter would not, of course, be accepted by an orthodox Communist. If questioned on the reasons for the change in policy, he replies, to use the words of one of them:¹⁹

We Communists made a mistake. When on September 2 we enunciated the policy of the "war on two fronts" we thought it was possible to point out all this, to support the war against German imperialist reaction, while at the same time exposing and weakening British imperialism, which has built German reaction to a menace, and seeks, not to destroy it in the interest of progress, but to make it subservient.

Our ear is close not to telephone wires from international mystery cities, but to the British working class, to factories and to homes, and it did not take many days' practical experience of this policy to teach us that it just wouldn't work.

¹⁹ Ivor Montague in an article *Communist Policy* in the *Fabian Quarterly*, Winter, 1939, p. 31 (London).

At all costs the orthodox Communist must prove not that his propaganda is in accordance with Stalin's foreign policy—that would be understandable and intellectually respectable—but that it is in accordance with the working-class opinion. That is a procedure which is as unavailing in fact as it is foolish in logic.

Each Communist Party organized a campaign, during the autumn of 1939, urging that the war was simply an "imperialist" war, the continuation of which was contrary to the interests of the working classes throughout the world. The defeat of Poland, it was maintained, (which by then had been divided between Nazi Germany and the Soviet Union), brought to an end any reason for the continuation of hostilities. Indeed, the *Daily Worker* soundly trounced the British and French governments of the day in unmistakable terms, for starting and prolonging the war:

Hitler repeated once more his claim that the war was thrust upon him by Britain. Against this historical fact there is no reply. Britain declared war, not Germany. Attempts were made to end the war, but the Soviet-German peace overture was rejected by Britain. All through these months the British and French governments have had the power to end the war: they have chosen to extend it.²⁰

By the end of 1940 "People's Conventions" were being organized throughout Great Britain urging a policy of what, following Lenin's technique of 1917, was called "revolutionary defeatism." It was maintained that a

people's government could formulate peace proposals and, while effectively defending us from foreign imperialism, could appeal to the people of conquered countries to form their own people's government.²¹

It was clear to everybody that such a government would have to go on fighting Hitler until similar governments had been formed on the continent of Europe by appealing over Hitler's head to the German people. Nowhere did the advocates of the policy explain either how this latter could be done or how Hitler could be fought on the basis of the principle of "revolutionary defeatism" while it was being done.

In view of its claims to be scientific, Marxism stands or falls on

²⁰ *Daily Worker*, February 1, 1940. This statement is obviously modelled on some remarks of Stalin published in *Pravda* in November, 1939. They run: "It was not Germany that attacked France and England, but France and England that attacked Germany, thereby assuming responsibility for the present war." Quoted in *A History of Soviet Foreign Policy*, by M. Ross (New York, 1940), p. 44.

²¹ *Daily Worker*, January 14, 1941 (New York).

its success in predicting and not only in interpreting and understanding the changes and chances of the political scene. In the hands of its Communist exponents, this it has signally failed to do. What we may validly call its rational scholasticism has meant that it has functioned as a closed system and not—as it can be—as a fruitful instrument of social analysis.

It is this feature in the Communist brand of Marxism that inevitably kills any hope that it can furnish the liberal democratic university with the foundations for the new *speculum mentis*. Like the scholasticism of the Middle Ages, the scholasticism of the typical Communist has no place for new facts, for, come what may, “the party line” must be vindicated and the ways of Stalin justified to man.²²

Soon after the Nazi armies invaded the Soviet Union the whole Communist movement in Britain raised the cry of a second front. The Soviet Union plainly needed it. Then began the twisting—not to say manufacture—of facts to prove that the working classes in Great Britain, like the rank and file of the Army, were wellnigh universally in favour of a second front. As early as September, 1941, Claud Cockburn, the London correspondent of *New Masses*, cabled his paper to the effect that the men in the British Army were “violently impatient with all the delays in the creation of a second front and the excuses offered for them.”²³

Although the situation has considerably changed since then, nothing was further from the truth *at that time*, as a description of the temper of the British working classes, both within the Army and on the production belt. On the contrary, their mood—I am describing, not vindicating it—was rather expressed by the sentiment:

The Soviet Union precipitated this war by signing the Nazi-Soviet Pact. Who in the long run *caused* it, whether it was Adolf or Neville, is neither here nor there for the moment. We do know that when Joe Stalin signed his agreement with the ex-champagne salesman,²⁴ war became inevitable and Joe knew it. Well then, let the Soviet Union do some of the fighting now. A bit of a rest won't do us any harm and in any case we've got to be quite ready and not half-armed as we were in Norway. When the second front comes we don't want any more retreats like Dunkirk, Greece or Crete. Let us therefore supply the Red Army with any tanks, guns or planes we have available, but for Heaven's sake let us wait until our lads are properly equipped before we make any more excursions to the continent of Europe.

²² i.e. to the man outside the Soviet Union. Any within the U.S.S.R. who question the party line receive neither persuasion nor argument but exile or execution.

²³ *Loc. cit.* September 9, 1941.

²⁴ Ribbentrop, the Nazi Foreign Secretary.

The scholasticism of Cockburn is rife wherever orthodox Marxism has struck roots. Reinhold Niebuhr recites²⁵ the following incident that occurred in one of the universities of the American Middle West. In a speech, Niebuhr remarked that imperialism is not a monopoly of capitalist powers but that it is a perennial feature of the life of nations. As an illustration of his thesis he mentioned the Soviet occupation of Eastern Poland and the Baltic States. In the subsequent discussion he was informed by a Communist that the action of the Soviet Union, referred to by Niebuhr, was not imperialist since Communism *by definition* (Italics mine. A. S. N.) is not imperialistic.

Neither is scholasticism of this type characteristic only of those Communists who are marooned in the benighted world of the liberal democratic states. It is even more obvious in the U.S.S.R. as it is revealed, for example, in the official defence of the emergence of a socially stratified society based on economic privilege. The possibility of a "classless" society—whether it is or was inevitable is not the point—was really ruled out when Stalin revised Marx's dictum, "From each according to his capacities, to each according to his needs," so that it became "From each according to his special capacities, to each according to his special needs."²⁶ Around the Kremlin a bureaucracy has arisen with all the paraphernalia of class, such as special privileges and a higher standard of living. Joseph E. Davies, when he was the United States Ambassador to the Soviet Union, was invited to lunch at the home of Madame Molotov. In his memoirs he laconically remarks:

The table was filled with hors d'œuvres. Luncheon was elaborate and many courses—three kinds of meat—six kinds of fish.²⁷

This class stratification runs throughout the whole of the Soviet Union. Writers, artists, leaders of dance bands along with high government officials occupy positions near the apex of the social pyramid. Skilled workmen and technicians follow. They, unlike the former group, may not have their country homes or *dachas* in the country, but differences in housing and modes of dress (especially among their wives) tell only too plainly that class-consciousness is far from dead. The next lower grade of the pyramid consists of the ordinary factory worker, and, occupying the broad base at the bottom, are what in England or the United

²⁵ In a conversation with the writer. ²⁶ See Article 12 of the new Constitution.

²⁷ *Mission to Moscow* (London, 1942), p. 84.

States would be called the "farm hands." This social stratification is not based upon trivial differences of economic reward. Sir Ernest Simon has worked out the ratio between the real income of municipal street-cleaners in various cities of the world and that of the highest paid officials of the municipality or state. Moscow and London came off with, from the egalitarian point of view, the worst figures, about 1 : 30, whereas for Stockholm, Copenhagen, Brisbane and Wellington the ratio varied from 1 : 6 to 1 : 9.²⁸ Similarly, in the armed forces of the U.S.S.R. all the indicia of rank have appeared—titles, medals, decorations, epaulets and gold braid.

However, the faith of the Communist is ever adequate to remove such a mountain of class-stratification, and Mr. Davies, like any other questioning individual, received from his acquaintances in the Kremlin the perfect scholastic reply:

on the Marxian theory there is no class distinction except that which exists between the workers and a capitalistic property-owning class which exploits them, and, inasmuch as this is a socialistic enterprise for the benefit of the state, and has no capitalistic property-owning class, therefore in the proper sense of the word, there are no "classes" because of these differentiations.²⁹

That strange paradox of the Anglo-Saxon world, the individualistic liberal who regards the Soviet Union (in idea only) as his shelter from the stormy blast and his eternal home, might reply to such an indictment of the Soviet Union that the illustrations quoted are taken from the politico-economic realm and that such scholasticism does not affect adversely the life and work of the Soviet university.

Such an objection would betray a complete misunderstanding of what the Communist means by "theory." Dialectical materialism is not a metaphysical theory to be kept within the walls of the classroom and lecture hall. It is the theory that governs all the most diverse spheres of human activity. There is not one theory for government, another for industry, another for law, another for art, another for foreign policy and another for education. The whole point of the Communist case (and herein lies its importance as we seek for a solution to the chaos of liberal atomism whereby each sphere of life has its own laws and goes its own way in complete autonomy), is that there is one theory which orders and dictates the whole. Indeed, the Communist proudly boasts that

education is planned as carefully as and in relation to the collectivized economy of the U.S.S.R. He would point out that the word *prosvestchenie* which is normally translated "education" has come to be synonymous with "enlightenment."³⁰ By enlightenment he means learning the proper handling of domestic appliances, the need to clean one's teeth, the understanding of football and the refusal to use bad language. That is why the radio, museums, art galleries, theatres, cinemas and the educational programmes of factories, collective farms, clubs and trade unions, as well as the curriculum of schools and universities, must be centrally controlled. The educational activities of all these institutions and organizations are based on the same theory. In the words of Lenin:

in the Soviet Workers' and Peasants' Republic the whole educational system . . . must be animated by the spirit of the proletarian class struggle for the realization of the aims of its dictatorship, i.e. the overthrow of the bourgeoisie, for the abolition of classes, for the removal of all exploitation of man by man.³¹

The entire system of higher education is an acted commentary on this principle. There is nothing in the U.S.S.R. similar to the colleges for the study of pure science and liberal arts which can be found in the United States or the Faculty of Arts in British universities. Each institution for higher education in the Soviet Union exists to provide a particular kind of specialist. The universities train specialists in the natural sciences, the social sciences and philosophy, while the engineering and industrial academies train technicians. To insure orthodoxy of teaching in the institutions of higher education a special kind of graduate school, open only to members of the Communist Party, has been founded. A. Pinkevich, the Director of the Research Institute of Scientific Pedagogy in Moscow, describes it in the following terms:

In a special category stands the Red Professors' Institute, which accepts only members of the Communist Party with a higher education. Its object is to train teachers of philosophy and the social sciences for the higher schools.³²

Moreover, all the schools have a specific political responsibility in relation to the community. The author just quoted goes on to say:

³⁰ See *Soviet Education*, by R. D. Charques (London, 1932), p. 11.

³¹ Quoted by A. Pinkevich in *Science and Education in the U.S.S.R.* (New York, 1935), p. 14.

In the period of the dictatorship of the proletariat, i.e. the period of preparation of the conditions required for the full realization of Communism, the school should not merely be the vehicle for the principles of Communism generally but also a means of conveying the organizing, educating, ideological influence of the proletariat to the semi-proletarian and non-proletarian layers of the population, with the object of bringing up a generation capable of establishing Communism.³³

The liberal's objection that the political scholasticism of the Stalin régime does not affect adversely the life and work of the Soviet university would betray also an equal ignorance of fact; for the whole teaching of the schools and universities of the Soviet Union, like the propaganda of the separate Communist parties outside the Soviet Union, is all co-ordinated to agree with the political necessities of the Stalin régime. Thus a typical Communist pamphlet, *A History of Soviet Foreign Policy*, sums up the period between the Russo-German armistice of December 5, 1917, and the signing of the treaty of Brest-Litovsk with the words: "Lenin and Stalin were forced to wage a bitter struggle against the enemies of the working class—Trotsky, Bukharin and others—who had started a furious campaign against the conclusion of the peace treaty."³⁴ The treaty itself is referred to as "a testimony to the tactical genius of Lenin and Stalin."

This strange interpretation of historical events is not a casual aberration of an individual American Communist. It is officially put forward in the authoritative *History of the Communist Party of the Soviet Union*.³⁵ In it Trotsky, Bukharin, Radek and others are "allies in a sinister scheme," "traitors" and "monstrous,"³⁶ while Stalin's name is always linked with that of Lenin as a model of loyalty and virtue. Thus Stalin and Molotov are referred to as Lenin's "close disciples and colleagues."³⁷

³³ *Loc. cit.*, p. 27.

³⁴ *A History of Soviet Foreign Policy* by M. Ross (New York, 1940), p. 8.

³⁵ E.T. (New York, 1939).

³⁶ *Loc. cit.*, p. 216 ff. Even the historical records have been changed so as to show Trotsky up in an anti-Lenin light. Thus when the Central Committee of the Bolshevik Party met on February 17, 1918, and Lenin put the crucial question: "If the German armies renew their offensive and if the workers' revolution does not take place in Germany and Austria, are we then to sign for peace?" Trotsky voted with Lenin and for peace. This fact is recorded in the contemporary account of the meeting. However, when the documents were reprinted in 1928 (the year of his excommunication) Trotsky is among those who are accused of abstaining. It is true that Trotsky began by opposing Lenin in the deliberations of the Committee but it is equally true that, at one stage in their discussion, so did Stalin.

See pp. 512-15, *The Bolshevik Revolution, 1917-18: Documents and Materials* by James Burnham and H. H. Fisher (Stanford University Press, Palo Alto, California, 1924).

What were the facts about the negotiations which led to the treaty? John W. Wheeler-Bennett, the author of the standard volume (standard, that is, outside Communist circles), *Brest-Litovsk: The Forgotten Peace*, presents an entirely different view of the matter. He points out that Trotsky was deliberately chosen by Lenin to lead the Soviet delegation, since the aim of the Bolshevik leader was to draw out the deliberations at the peace-table as long as possible. This historian's careful conclusion is that "Trotsky carried out delaying tactics with masterly skill."³⁸

It is true that Trotsky made a serious miscalculation when he defied the German generals with his historic gesture of "No War—No Peace" and went back to Petrograd. But the resulting sacrifice of territory which Lenin approved (it was inevitable in any case) provided exactly the breathing space necessary for Trotsky as Minister of War to organize the new Red Army which eventually defeated the counter-revolutionary forces and assured the final success of the Bolshevik Revolution.

Barbara Ward, the foreign editor of *The Economist*, pays a similar tribute to the fashion in which "the struggle against the White Armies was carried on—and brilliantly—by Trotsky" and, as the final cut of all to the orthodox Communist, she remarks, "Stalin was still relatively unimportant,"³⁹ a judgment that accords with Wheeler-Bennett's dictum that "in these early days the future dictator of Russia showed no capacity to rule or lead."⁴⁰

The co-ordination with political necessity of the teaching of history in the schools follows the same pattern. The standard textbook in Soviet schools, *School History of the Soviet Union*, has broken completely with the tradition of earlier text-books. These had emphatically denied that personalities played any important role in history, whereas the new text-book glorifies the mind and will of the ruler in the decisive periods in Russian history; all this to present a suitable background to the picture of Stalin as "the modern leader of the people." Trotsky, Bukharin and the rest of Stalin's opponents are all vilified.

That contemptible enemy of the people, the Fascist agent Trotsky, and his contemptible friends, Rykoff and Bukharin, organized within the Soviet Union bands of murderers, ruffians, and spies. They assassinated the ardent Bolshevik Kirow. They also plotted the murder of other leaders of the proletariat. The

³⁸ *The Treaty of Brest-Litovsk and Germany's Eastern Policy* (Oxford, 1940), p. 8.

³⁹ *Russian Foreign Policy* (Oxford, 1940), p. 28.

⁴⁰ *Brest-Litovsk: The Forgotten Peace* (London, 1928), p. 129.

Fascist scoundrels who followed Trotsky and Rykoff organized train-wrecking, explosions, fires in coal-mines and factories; ruined machinery, poisoned workmen and did damage wherever they could.⁴¹

The history of science is equally maltreated.

It was only under the Soviet Government that Pavloff, as member of the Academy of Science, could develop his talents. Cherished by the care of the Russian people, supported by the power of the Soviet, Pavloff made many new discoveries about human life.⁴²

The writers of the text-book, which incidentally *Pravda* recommended as "a genuine gift from Stalin to our children," omitted to mention that Pavloff was not entirely unknown to the scientific world before the Bolshevik Revolution. Indeed, fourteen years before it took place he had been awarded the Nobel Prize for his work in physiology.

Even the dignified pages of *The Yearbook of Education* are not immune from such extravagant laudations of Stalin and his régime. M. Epstein, for example, the Director of the Department of Social Education, Commissariat of Public Instruction, Moscow, closes his article on *Education in the U.S.S.R.* in the following terms:

It is impossible to understand the reasons of such a mighty cultural uplift in the Soviet State if one does not take into consideration the simple circumstance, which, however, is only possible in a Socialist State, that the appeal of the leader of the peoples of the Soviet Union, Comrade Stalin, to schoolchildren, to youth, to adult workers and peasants—to study and to conquer the heights of science and of technique—expresses their vital interests and natural strivings towards a happy and cultural life.

Herein lies the pledge of a further, still grander, blooming of culture in the land of Soviets.⁴³

This adjustment of knowledge to the exigencies of a political régime runs throughout the whole of the curriculum. Thus, since Bukharin, Trotsky and Deborin are "traitors," their philosophy must be shown to be erroneous. Bukharin, therefore, is castigated for his mechanistic materialism, Trotsky for his "leftist deviations," and Deborin for his "dialectical idealism."⁴⁴

⁴¹ Quoted by Paul Olberg in article *The Teaching of History Under Stalin* in *The Contemporary Review*, Vol. 155, p. 467 (London).

⁴² *Ibid.*, p. 468.

⁴³ *Yearbook* for 1937, p. 789, published for the Institute of Education in the University of London.

⁴⁴ On this whole question see the brilliant essay by Nicholas Berdyaev, *The General Line of Soviet Philosophy*, published as an appendix to his *The End of Our Time* (London, 1933).

Comedy, opera and drama too, all must be co-ordinated to the changes in the political policy of the Kremlin. The playwright, Demian Byedny, completed in 1936 an opera libretto entitled *Bogatyri*. It depicted the Russian nobles during the tenth century as tyrants and oppressors and, with savage satire, it dealt with the wholesale conversions to Christianity at the hands of Prince Vladimir of Kiev. The opera passed the censor and it opened triumphantly in Moscow, being acclaimed a brilliant success by the critics. Unfortunately for the playwright, the critics, and Director Tairoff of Kamerny Theatre, the official policy toward Christianity had just changed. An "important member of the government," to quote the vague but revealing phrase which the censor allowed the correspondent of the *New York Times* to cable to his newspaper, saw the opera. The arts committee of the Council of People's Commissars met and declared that

it is well known that the Christianizing of Russia was one of the principal factors in the rapprochement of the backward Russian people with the people of Byzantium and later with the people of the West, namely, with peoples of higher culture.

For ignoring this truth, Byedny was castigated for showing an attitude which in the words of the report was "not only anti-Marxist but also light-minded."⁴⁵

Art, too, must reflect the political necessities of the moment. The leading Soviet artist in oils, Gerasimov, painted a magnificent palace interior showing the Red Army generals in conference. However, before it could be exhibited at the Paris Exhibition, Tukhatchevsky and some of the other generals had appeared before the courts on a charge of treason. The picture, therefore, was repainted and the portraits of the offending generals removed.⁴⁶

In the middle thirties the Soviet Union was in the throes of the *Formalism* controversy. Any artist who attached less importance to *content* than to *form* was accused of *formalism*. All artistic creation had to be turned in a particular direction or the artist was ignored. André Gide records that he saw at Tiflis an exhibition of

⁴⁵ *New York Times*, November 16, 1936. The leading Soviet composer, Dmitri Shostakovich, had exactly a parallel experience with his opera *Lady Macbeth*. For a full account see *Dmitri Shostakovich*, by Victor Ilych Seroff (New York, 1943). It should be mentioned, however, that in the most recent treatment of the Soviet theatre, *The New Soviet Theatre* (London, 1943), the author, Joseph Macleod, maintains that this extreme "politicization" of theatrical art has now been eased.

⁴⁶ See *Mission to Moscow* by Joseph E. Davies (London, 1940), p. 202.

the work of artists against none of whom could the charge of formalism be sustained.

These artists had attained their object, which is to edify, to convince, to convert. (Episodes of Stalin's life being used as the themes of these illustrations.)

He cuttingly adds "it is very certain that none of these people were 'formalists.' Unfortunately they were not painters either."⁴⁷

In geography such a grotesque picture of capitalist countries is given that a critic as friendly as Beatrice King, after spending on several occasions lengthy visits to Soviet schools and colleges, is forced to record her judgment that:

The information given to the children about foreign countries was more than biased—that is common to all countries—it was incorrect.⁴⁸

The situation resulting from this policy of "*Gleichschaltung*" as it affects the law schools of the Soviet Union, borders on the ludicrous. Thus during the treason trials, law classes at the University of Moscow were cancelled while efforts were made by the staff to find out what could still be safely taught and what textbooks could still safely be used as fountains of truth and light. Such caution was advisable for the teachers knew that

When confidence in the scholar's loyalty to the system, which is taken for granted as a matter of course, is shaken (and it can be shaken in various ways—amongst others, by ill-will and denunciation), then no scholarly accomplishments will save him from serious trouble, prison or banishment.⁴⁹

This policy of co-ordination of all knowledge to the political exigencies of the Stalin régime has meant not an advance toward that universalization of knowledge for which Marx and, after him, Lenin hoped. It has achieved exactly the opposite effect, for any books written by authors outside the Soviet Union have to be "revised." Thus a book by the distinguished Princeton biologist, E. G. Conklin, had several footnotes added and several passages omitted during its translation into Russian in the effort to make Conklin's biological views consistent with Communist doctrine.⁵⁰

H. G. Wells is considered to be beyond revision. Julian Huxley

⁴⁷ *Back from the U.S.S.R.* (E.T., London, 1937), p. 78.

⁴⁸ *Changing Man* (London, 1936), p. 30.

⁴⁹ Klaus Mehnert in *Youth in Soviet Russia* (E.T., London, 1933), p. 43.

⁵⁰ See *Science, Philosophy and Religion*, article by Louis Finkelstein (New York, 1941),

relates, in his book, *A Scientist Among the Soviets*,⁵¹ that during his visit in 1931 to Soviet universities and institutions for scientific research,

I was told on high authority that Mr. Wells' *Outline of History*, in spite of its many merits, could not be translated into Russian because a too copious commentary would have been needed to "explain" it to communist readers, and the result would have been confusing.

This policy inevitably produces some absurd situations, since, naturally, busy committees of executives and bureaucrats who make up the leadership of the régime cannot give adequate attention to some of the thorny educational problems on which they are asked to pronounce their weighty judgment. On July 4, 1936, the use of the Binet-Simon intelligence test was declared to be the product of counter-revolutionary science. This was followed by penitential confessions from the educationists who had used these tests. The *Moscow Daily News*⁵² describes a meeting of pedagogists at which such a confession took place.

Most significant was the speech of Professor G. P. Blonsky. "I personally feel the full weight of responsibility for the offences of pedology," he said. "I knew all along that bourgeois pedology does not accept the Marxist basis, but I continued using tests and measurements, which are a means of bolstering up the exploiting classes."

A bold attempt was made in 1932 to co-ordinate the natural sciences with the official philosophy of the Soviet Union and a journal, *Zeitschrift für Physik der Sowjet-union*, was founded so that learned articles on such subjects as "The Dialectics of Graded Steel" and "Marxism and Surgery" could be made available for scholars outside Russia. However, the absurdity of some of these articles proved too much for the leaders of the U.S.S.R. and the Party line was changed.⁵³

The biological sciences have not proved so fortunate, and even to-day, every anthropologist in the Soviet Union must accept Morgan's view of the universal and unilateral succession of family relations since Engels did so in writing *The Origin of the Family, Private Property and the State*.⁵⁴

⁵¹ London, 1932.

⁵² See *Moscow in the Making* by Lady E. D. Simon (London, 1937).

⁵³ For an account of these journals and the official condemnation see p. 999 f. Vol. II, *Soviet Communism: A New Civilisation* by Sidney and Beatrice Webb (London, 1941). These authors, however, are strangely optimistic in recording their judgment:

"Needless to say, the Communist Party is as fully aware of the effects of the disease of orthodoxy as of its prevalence in the ranks of the Party."

⁵⁴ Written in 1886; the English translation did not appear until 1900 (Chicago).

All biological questions are discussed in terms of this literary fundamentalism of Marx and Engels,⁵⁵ while a recent bibliography of literature in genetics, which was prepared by a publishing house in the Soviet Union, did not appear presumably because some of the authors had been convicted of Trotskyite leanings.⁵⁶

Among Communists outside Soviet Russia the British biochemist, J. B. S. Haldane, has made a valiant effort to relate the natural sciences to dialectical materialism. His book, *The Marxist Philosophy and the Sciences*, is addressed to his fellow scientists in "the belief that Marxism will prove valuable to them in their scientific work, as it has to me in my own."⁵⁷ He does not indicate at all clearly where the utility of Marxist principles has been instrumental in the discovery of any new facts or theories in the natural sciences, although he explores in turn mathematics, physics, chemistry and biology. He does, however, succeed in showing how one may relate the dialectical principles to scientific facts and formulæ without either adding to or, in fairness one should say, subtracting from their truth. The book might be called a twentieth century Marxist echo of nineteenth-century Biblical fundamentalism. Just as the fundamentalist took great pains to show that the writer of the first chapter of Genesis, for example, was describing modern scientific theories in astronomy or biology, so Haldane tortures language and facts alike to prove that Marx, and Engels in particular, were at least the harbingers of, for example, the quantum theory. To give an illustration from Haldane's chapter on chemistry:

To sum up the quantum theory from this point of view, Engels wrote fifty years ago: "One knows that what is maintained to be necessary is composed of sheer accidents and the so-called accidental is the form behind which necessity hides itself."⁵⁸ In our case the necessity is the sharp quantization of atomic energies, which leads to sharp spectral lines and almost rigid atoms. The accidents are events in individual atoms, which, however, add up to practical certainty when we are averaging trillions of atoms, as is almost always the case in practice.

⁵⁵ For a revealing interpretation of the relations between biology and Marxism see a book with that title by the French Communist Marcel Premant (E.T. by Desmond Greaves, London, 1938), and there is an interesting report of a discussion on genetics at the Lenin Academy of Natural Sciences in *Nature* (1937), Vol. 140, p. 296.

⁵⁶ See article *Genetics in the U.S.S.R.* by "Helix" and "Helianthus" in *The Modern Quarterly* (London), Vol. I, p. 371.

⁵⁷ *Loc. cit.*, p. 7.

⁵⁸ Quoted from *Ludwig Feuerbach and the Outcome of Classical German Philosophy*,

That this exegetical use of Engels is not a solitary instance will be plain if a further example⁶⁰ from Haldane is given:

Why does this instable molecule break in an average time of half a second, and this one in ten years? Why is this molecule stable in water solution, but unstable when united with an enzyme? The answers can be given, where at all, in terms of quantum mechanics, with its strange union of change and necessity. Nowhere can we say "this molecule will inevitably rearrange itself within a certain time." We can only state the probability of such an event. To quote Engels once more: "One knows that what is maintained to be necessary is composed of sheer accidents."

And, according to Haldane, this gift of prophetic foresight was not given to Engels alone, for this mantle fell on Lenin who apparently foresaw, even if (as is evident from Haldane's somewhat hazy argument) through a glass darkly, the gene theory of modern genetics. To quote from Haldane's discussion⁶⁰ of recent research in biology:

The probable result of Goldschmidt's critique will be the conclusion that a gene is an organ, a part of the chromosome with a definite function, extending over a finite region of the chromosome, and usually behaving as a unit of the formation of gametes. But the gene will not be regarded as a point, and it is even possible that different genes will be found to overlap. "Knowledge is the eternal infinite approach of thought to the object. The expression of nature in man's thought must be understood not in a dead abstract way, not without movement, not without contradiction, but in an eternal process of movements, of the springing up of contradictions and their solution." Lenin, quoted in Diderot, *Interpreter of Nature* (London, 1937).

Haldane begins his chapter on psychology by saying that "The mind is the most amazing example that we have of the union of unity and diversity." Haldane then manipulates—that is not too strong a word—both ancient and modern psychology alike so as to fit them into the Marxist strait-jacket. Thus to prove his point for the Middle Ages he finds it necessary to argue for a unitary theory and since "St. Thomas lived near the climax of medieval society when it had reached a somewhat precarious equilibrium," Haldane makes the astonishing assertion that St. Thomas "put forward as satisfactory a unitary theory of the soul as has ever been given."⁶¹ Just as we begin to ask the question, "How can that be so when fundamental to Aquinas' whole philosophy of the person was the distinction between *psyche* and *pneuma* as applied to the

human individual?", Haldane moves on his exposition a few centuries and considers the Reformation.

The real tragedy of the situation is that this idolatrous use of the literal interpretation of the original writings of Marxist literature is not only quite contrary to the temper of Marx himself (did not Marx himself exclaim sardonically on one occasion "*Je ne suis pas un marxiste*"?) but it gives those intellectuals who seek to defend the present social order exactly the excuse they seek in their endeavour to escape from the trouble of that re-orientation in thought which follows any serious attempt to study Marx.

In seeking to understand the working of the minds (and souls) of Communists with the intellectual strength and personal vigour of Haldane, one is driven to the conclusion that in such cases the only category in terms of which we can understand it is that of religious scholasticism.

It is *scholastic* since, as we have seen, the whole realm of learning is under the domination of an orthodoxy which in the U.S.S.R. can be enforced or, out of it, is voluntarily accepted by its devotees. As we have seen, the writings of Marx, Engels, Lenin and Stalin (like those of Aristotle in the later Middle Ages) are regarded as beyond criticism. They cannot be called into question. This scholasticism applies to, as it has its origin in, the politics and policies of the Stalin régime. Although he will vehemently deny it, the Communist resembles the Roman Catholic in that ultimate and final truth is revealed for both in an organization which aims at universal membership and which speaks through its chief dignitary. The Communist equivalent to the doctrine of Papal Infallibility is that Stalin is always right. This comparison the Communist will vehemently deny but that it is true is soon proved by his invariable refusal to name an occasion when Stalin has been in the wrong.

It is valid to call Communist thought *religious* scholasticism precisely because there exists in it an integrating principle which gives meaning to it and in terms of which the Communist interprets in faith the changes and chances of this mortal life. The Communist's veneration for Stalin, as voicing the true party line, is a *religious* loyalty, since it is a loyalty which conditions, but is never conditioned by, other loyalties.

Among liberals who, not having joined a Communist Party, cannot be said to have submitted to the pope in the Kremlin, we have not so much a religion as a pseudo-religion. The liberal

admirer of the Soviet Union finds it very difficult to give up his belief that the Soviet Union is achieving a more universal aim than that of the Stalin régime. The fact that he is partly right does not completely explain why he is so blind to any but those features in the régime which meet with his approval.

A typical illustration of such liberal adoration at the shrine of the Kremlin is *Soviet Communism* by Sidney and Beatrice Webb.⁶² As Reinhold Niebuhr has wittily pointed out,

A description of the legal structure of municipal government in New York City would have no place for Tammany Hall. One suspects that the Webbs sometimes leave out the communistic equivalent for Tammany.⁶³

In the new edition,⁶⁴ Mrs. Webb's faith still holds. She contributes an introduction in which she discusses collective farms but does not mention famine and considers kulaks without mentioning liquidation. Indeed, her introduction would never give her reader the slightest reason to believe that the O.G.P.U. played any role at all in the Soviet Union. It is significant that the only persecutions which seem to disturb the Webbs are those which are the lot of the intellectuals.

Here is the key to the understanding of Marxism, whether in its orthodox or liberal version. Pretensions are discerned only at the point where the critic is personally affected. Marxism, as Max Weber pointed out,

is not to be compared to a cab that one can enter or alight from at will, for once they enter it, even the revolutionaries themselves are not free to leave it.⁶⁵

Marxism has become a source of political confusion and intellectual error precisely because it finds the origin of both in class and class alone. That is why it is so acceptable to the liberal intellectual because it does not seriously challenge his self-esteem. It assures him that all partial perspectives can be transcended, not realizing that that delusion is the most powerful pretension of all.

The Marxists have done right in attacking the traditional liberal thinker for his pretence that he has attained objective and impartial truth at the point where his interests are imperilled. The Marxist is correct when he says that

⁶² First published London, 1935.

⁶³ *Radical Religion*, Vol. I, p. 38 (Spring, 1936), New York.

⁶⁴ London, 1941. Its introduction has been separately published in the U.S.A. under the ambitious title, *The Truth about the Soviet Union*.

⁶⁵ Quoted by Karl Mannheim in *Ideology and Utopia* (London, 1936), p. 62; from *Politik als Beruf in Gesammelte Politische Schriften* (Munich, 1921), p. 446.

As there is no "neutral" human culture, so there is only "class," "bourgeois," "proletarian," etc. culture; as there is no "objective" science, so there can be no non-class University.⁶⁶

He is wrong, however, exactly at the point where he forgets this and pretends that Soviet truth is the final truth and that the Stalin régime is disinterested just because it is a Stalin régime. He can only escape from this error by being Marxist about Marxism which simply means that he has achieved the capacity to judge any human attainment—whether in the Soviet Union or out of it—from a perspective which transcends it. To do that, of course, is to cease being a Communist.

When André Gide, the French literary critic, wrote his *Back from the U.S.S.R.*,⁶⁷ his final treason from the Communist perspective was not his contention that the typical Moscow worker was indolent, nor his suspicion of official information nor even his statement that he doubted whether in any country in the world, even Hitler's Germany, thought is less free, more bowed down, more terrorized and more vassalized,⁶⁸ than in the Soviet Union. It was not his scornful remarks,

in the U.S.S.R. everybody knows beforehand once and for all, that on any and every subject there can only be one opinion, and in fact everybody's mind has been so moulded and this conformism become to such a degree easy, natural, and imperceptible, that I do not think any hypocrisy enters into it. . . . Every morning the *Pravda* teaches them first what they should know and think and believe. And he who strays from the path had better look out!⁶⁹

Gide's final treason lay much deeper. It was that he had discovered a higher loyalty than the Stalin régime and so could write:

There are things more important in my eyes than myself, more important than the U.S.S.R. These things are humanity, its destiny, and its culture.⁷⁰

There lies the ultimate source of the only adequate rejection of orthodox Marxism as the cure for the malady which afflicts the liberal democratic university.

We can sum up the case against the totalitarian university of either a Nazi or a Marxist brand by saying to the Nazi and the Communist, however much they may dislike being bracketed together:

⁶⁶ Quoted by Eugheny Lampert from *Krasniy Trud* No. 5 in the article *The Spirit of the Soviet Russian University* in *The Student Movement* (London), Vol. 44, p. 121.

⁶⁷ (E.T., London, 1937.)

⁶⁸ *Ibid.*, pp. 40, 43, and 63 respectively.

⁶⁹ *Ibid.*, p. 45.

⁷⁰ *Ibid.*, p. 13.

"You are both right when you attack the chaos of the liberal *Weltanschauung* but your alternative of a totalitarian strait-jacket for knowledge is infinitely worse.

"You are both right when you reject the liberal view that knowledge can be sought for its own sake but that need not and does not mean that therefore knowledge must be ceaselessly co-ordinated so as to buttress a particular political régime whether it be that of Stalin or Hitler.

"You are both right in dismissing the liberal rationalist's claim that knowledge is without presuppositions but to identify the true presuppositions with the contents of a dictator's head is no better.

"Finally, you are both wrong and profoundly wrong when having seen through the liberal's pretensions you claim absolute truth and finality for your own."

PART III

TOWARDS RECONSTRUCTION

"We stand on the threshold of a new epoch in which a set of ideas, completely different from those which were characteristic of the period coming to a close, will direct and control man's thinking."

J. H. OLDHAM.

(VI)

THE SOCIOLOGY OF KNOWLEDGE AND THE ABSOLUTENESS OF TRUTH

"No educational activity or research is adequate in the present stage of consciousness unless it is conceived in terms of a sociology of education."

KARL MANNHEIM.

IN the foregoing chapters we have considered from various aspects the crisis in Western civilization which the emergence of the totalitarian Powers has thrown into clear relief. In particular we have seen how the liberal *Weltanschauung*, based upon the premise that science is presuppositionless and deals with facts and not with values, is dissolving before our eyes. We have rejected the totalitarian synthesis of knowledge—whether with a Marxist or a Fascist label—on the grounds that each of them is an attempt to remedy the disease of modern civilization by aggravating the condition that produced it. Nevertheless we have seen that in order to stand against the totalitarian challenge the contemporary university in the liberal democratic world can no longer be content to regard itself simply as a centre for the efficient distribution of factual knowledge. In the words of an eminent teacher of history:¹

To place each item of fact in the realm of *meaning*—that is the great task of the university. . . . It is not enough to say that the scholar has the facts and knows how to get them; it is not enough that he is disinterested and loyal to truth. Only can he achieve his goal if he provides an interpretation of facts in the light of the wisdom of the ages to the end that it gives meaning to the life of individual men and purpose to the activities of society.

¹ Edgar Eugene Robinson in an address in the Stanford University Memorial Church, August 3, 1941.

Thus the typical liberal democratic university teacher must drastically revise his proud (and empty) boast that he is teaching nothing but the "facts": natural science without metaphysics, the social sciences without political bias and history without propaganda. Instead, he must be willing to accept the responsibility for the creation and teaching of a unified and coherent philosophy.

It is impossible to exaggerate the difficulty of this task; the cleavages in fundamental premises are so deep. Prior to the First World War, the West had some semblance of unity even if, as we have seen, it rested upon a basis that we can now no longer accept. At the least it was sufficient to furnish some common language of communication. But to-day the chaos is so complete that even that is denied us. The depth of the intellectual crisis in our day can best be seen by noticing that knowledge in any age has a two-fold character. On the one hand, it is related to what I shall call its ontological reference. By that I mean the ultimate purpose for which knowledge is sought: in Scholasticism, it was the glory of God through the preservation of feudalism; in liberal democracy, it is the self-sufficient individual; in Soviet Communism, it is the achievement of a classless society in the U.S.S.R.; in Nazism, it is the good of the Nordic race with Germany as the spearhead of that race. On the other hand, knowledge is also related to the categories in which it is finally expressed: what I shall call its "form." For example, the "form" of knowledge in early Scholasticism was Platonic, whereas in later Scholasticism it was Aristotelian; in the seventeenth and eighteenth centuries the form of knowledge was mathematico-physical; in the nineteenth century it was evolutionary; and in contemporary Marxism it is dialectical.

It is clear that the intellectual climate of opinion in any age is therefore a function of two variables: its ontological reference and its "form." Thus in its "form" Scholastic thought before Thomas Aquinas was Platonic and after him it was Aristotelian whereas during the whole of this period it was theocratic-feudalistic in its ontology. Similarly knowledge remained "rational-individualistic" in its ontological reference from Galileo to Darwin but its "form" repeatedly changed as the sciences developed. The resemblance between our age and that of Europe at the end of the Middle Ages is that since the fall of Rome on these two occasions only has there been a need for a simultaneous revision of knowledge in its form and its ontology. Both Marxist and Nazi thought involve this dual revision of liberal thought. Whereas liberal

thought is rationalist-evolutionary in its form and individualistic in its ontological reference, Marxist thinking is rational-dialectic in its form and "classless-society-of-the-future" in its ontology while Nazi thought is anti-rationalistic in its "form" and Aryan in its ontology.

Our task in the present chapter is to indicate the "form" of knowledge in the future *speculum mentis*. If we are to give up, as both the internal growth of science and the politico-economic development of the Western World indicate, the thought-model based on science as traditionally understood, what can take its place? As I have urged before, I am not suggesting that we should or even can adopt a Canute-like attitude and try to slow up the advance of science as a body of factual knowledge. On the contrary, I am simply arguing that what we need is a new frame of reference in terms of which scientific knowledge can be ordered and understood. That is exactly what the early scientists accomplished with "reason." They did not deny its utility but, as we saw in Chapter II, they simply placed it in a new frame of reference.

To the rational individualist we have replied: "Your remedy of more facts for the contemporary chaos in which learning finds itself is like suggesting to a swimmer drifting to Niagara Falls that all he needs is more water." To those who suggest that the way out is for science to stand still, we say: "Your remedy is like seeking to canalize Niagara in one of Lord Bridgewater's early waterways." To pursue the metaphor we can say that just as the swimmer is saved when the relation between his body and the water is changed so that he can deal with it with some hope of success, so modern man needs a new orientation of his mind in relation to the facts. Then and only then will he be able to deal with them.

Nor do I wish to suggest that the "form" of the new frame of reference can be described before it has been achieved. And that achievement is not yet. At this juncture in history only certain outlines are visible. What these are can be seen by noticing the common elements in the Nazi and the Communist pattern of knowledge. In spite of their profound disagreements in other realms both the Nazi and the Marxist realize that the Achilles' heel in the liberal rationalist's conception of knowledge is his failure to recognize that every assertion, no matter how objective it may appear, is *to some extent* related to certain group interests. Hence it has ramifications extending far beyond the specific intel-

forestry. I single out these two subjects from the university curriculum precisely because they are the two subjects suggested by one liberal rationalist, H. J. Laski, as indicating two fields of knowledge where government departments can be expected to give unbiased knowledge. To quote his actual words:

A government department may announce conclusions on forestry or meteorology without the suspicion of bias being attached to its results.²

Yet when the Second World War broke out these were two fields of study the results of which were kept as dark a secret as any mystic lore of the ancients.

It can scarcely be denied by the most rigid liberal rationalist that group interests have a controlling influence on the growth of the social sciences for the simple reason that every statement of a "social" fact touches at some point the interests of a group and therefore to bring such facts to the public gaze is to court the objections or, less generally, the praise of these groups. But even the growth of the natural sciences is conditioned by social factors since these latter determine the particular fields to be developed and since certain criteria of priorities, arising out of the practical needs of the power groups within a society, determine the field of investigation even within so-called "pure" science. At the same time, we must realize that the process is a "dialectical" one, since the discoveries of science stimulate certain needs which, in their turn, set further problems for elucidation by the scientist.

This attempt to correlate the growth and formulation of knowledge with its social background has come to be called the sociology of knowledge. There is little doubt but that this approach is here to stay, for it has explained what from the angle of all pre-Marxist thinkers, from liberal rationalists to Roman Catholics, was a completely mysterious problem, viz.: Why do different systems and types of knowledge come into existence at specific historical epochs, and not at others?

As we have seen, knowledge at the dawn of the modern era was individualistic in character, while to-day the sociological aspects of knowledge thrust themselves upon us. This is no accident. The predominant mode of thinking in the sixteenth century was

² *A Grammar of Politics* (London, 1925), p. 374.

In fairness to Laski I should add that in his more recent writings, he adopts a view of the integral connection between knowledge and its social origins which is closely akin to the one being put forward in this book. See, in particular, his criticism in his *Parliamentary Government in England* (London, 1938), pp. 267 ff., of Sir William Beveridge's idea of an economic general staff.

rational-individualistic and, as such, it was the correlate of the calculating and individualistic entrepreneur of early capitalism. The parallel does not stop there. The correlation, on the one hand, between the capitalistic economic order based on the division of labour and the scientific movement based on abstraction³ and, on the other hand, between feudal economy and scholastic philosophy is not far to seek. The feudal economy was, as we have seen, static and based on tradition. So was scholasticism.⁴ However, both the scientific movement and the capitalistic enterprise are based on unlimited acquisitiveness, neither having any co-ordinated plan for dealing with the surfeit of, in the one case, facts, and in the other case, goods. Therein is indicated the correlation between the lack of any unified synthesis in the realm of scientific knowledge (and hence the intellectual chaos of the liberal rationalist world view) and the over-accumulation of goods,⁵ which, in the absence of any plan for distribution, has led to the ploughing under of crops, the burning of wheat and coffee, and other indicia of the disorder in the socio-economic life of liberal capitalist society. The correlation does not end there. It is only when the modern world moves towards a collectivized economy that there appears among men of knowledge the realization that account must be taken of sociological factors if knowledge itself is to be understood.

Herein we see why, for the modern world, the achievement of some common frame of reference is a commanding necessity. A planned economy is inescapable. This will carry with it the inevitable concomitant of a planned educational system and hence a planned university. The real question becomes therefore not, "Shall we or shall we not have a planned university?"—that is not a live option—but rather, "On what basis shall it be planned, and to what purpose?"⁶ Our concern with this problem in the present chapter is whether we can discern the possibility of a "form" of knowledge which, while being adequate for the demands of a collectivized society, yet helps and does not hinder both the conservation and the growth of those values of individual freedom and responsibility for which liberalism at its best has always stood. The thesis of this chapter is that there is no hope that such an

³ See Chapter II, p. 65.

⁴ For further treatment of this subject see pp. 9–11, *Ideology and Utopia* by Kar. Mannheim (London, 1936).

⁵ Even when the full resources of production are not used.

⁶ At the moment the universities are being planned in accordance with the requirements of a war economy.

im can be achieved unless there is wellnigh universal recognition that knowledge can only be adequately understood in terms of its social origins.

The sociological method, applied to knowledge itself, is a natural development of the empirical method which has been basic to the scientific enterprise, for, as science seeking to become scientific about itself in its relation to society, it is concerned not with how men ought to think or even how professional thinkers think but with the problem of how men, in view of their social allegiances actually do think. It begins with the plain fact that the thought of an individual in its differentiated form only gradually emerges out of the historical-social situation in which the individual lives. It is this aspect of the matter that makes clear the distinction between the psychology of cognition and the sociology of knowledge. As contrasted with the sociology of knowledge, the traditional psychology of cognition focused attention on the individual, being mainly concerned with the psychological mechanisms that were at work in his mind. We might add in parenthesis that it thereby failed to realize that the immediate findings of the process of self-observation do not convey a knowledge of the social setting in which the mind operates. This distinction between the sociology of knowledge and the psychology of cognition must not be construed as implying that psychology deals with the individual while sociology deals with groups. Indeed, nothing could be further from the truth. Any individual can be considered sociologically which means that we observe him not in isolation but in his social setting and as representative of the social groups to which he belongs. Similarly there is no social behaviour which is not confined to the possibilities of behaviour that are available for the individual.

We can further exhibit the distinction between the two disciplines by pointing out, to use the words of Karl Mannheim, that for the psychologist

The guiding thread of his account is the inner life history of the individual, with which external differences may interfere, but the unity of which is guaranteed by the supposition that psychology takes the individual as a unit, as a closed organism. The sociologist follows up the causal interlinkage in the opposite direction. He will emphasize that although all these individuals seem to be self-contained and self-determined units, nevertheless if one concentrates upon the working of institutions like barter, mutual help, co-operation, division of labour or upon the main functions of the family or political party, the seemingly self-centred individuals tend on the whole to behave as if they were

giving up their autonomy in order to adjust themselves to those objective functions, the sum of which makes the institutions.⁷

The distinction between the sociology of knowledge and, on the other hand, logic and epistemology can be stated more easily. Logic is concerned with the question of the formal conditions that must be satisfied if the reasoning process is to be valid. Thus in philosophy, as traditionally understood, there is no final distinction between logic and epistemology since epistemology can be defined as the attempt to ascertain the most general principles of the body of knowledge in so far as it is a systematic and coherent whole.

Such principles can be termed *a priori* principles. They cannot be proved since they themselves are constitutive of any series of deductive steps. They cannot be empirically established because they themselves are ingredient in the very processes whereby the mind investigates what is given in experience. In a sense they are self-evident since in the very nature of the case nothing else can be logically prior to these principles. But they are not self-evident if by that term we mean "true on inspection." In actual experience our understanding of them is continually changing since they are formulations of what is implied in the process of thought as knowledge expands in factual range and increases in logical consistency.

At first sight it would appear that these *a priori* principles are identical with what are sometimes called the presuppositions of actual thinking. But that is not strictly true, since if we examine the thought of any particular thinker the presuppositions which he takes for granted (even when, as an epistemologist, he is concerned with the examination of these presuppositions) fall into two groups: (a) those which are logically basic to his theory and are therefore the true *a priori* principles inherent in his system, and (b) those which are psychologically basic to his thinking but which are logically irrelevant.

The so-called laws of thought present the most obvious illustration of the first group of presuppositions. A further illustration and one of peculiar interest has its origin in "original sin" as tainting all human knowledge. This infection of the intellect by the will arises not from man's finite nature but from that within him which expresses itself in his incapacity in action—even when theoretically he accepts the doctrine—to admit this limitation.⁸ The peculiar

⁷ In *The Sociology of Human Valuations* in *Further Papers in the Social Sciences*, ed. by J. E. Dugdale (London, 1937).

⁸ For an illuminating elaboration of this point, see Reinhold Niebuhr's essay *Religion and Action in Science and Man*, ed. by Ruth N. Anshen (New York, 1942).

interest of this illustration lies in the fact that it explains the existence of presuppositions of the second type. They consist of those hidden assumptions which we think of when we use the word "bias." They have their origin, not in the fact that knowledge is "human," but that the knower is British or German, academic or practical, young or old, bourgeois or working class. All truly scientific thought will seek to eliminate this bias, since it is the intrusion of the logically irrelevant. The attempt, of course, can never be completely successful. The only thing that man can do is to accept the fact that to become aware of a bias is to some extent to transcend it. The psychology of cognition deals with these hidden presuppositions in so far as they are expressed in the thought of the individual thinker, whereas the sociology of knowledge is concerned with these presuppositions of thought in so far as the thinker is a representative of a particular group.

It is sometimes maintained by those who deprecate any emphasis being placed on the psychological and sociological factors which govern the growth of knowledge that to do so is to substitute the pathology of thought for epistemology. This argument is akin to that which dismisses Marxism on the grounds that it is "social pathology." But a scientific study of society must begin with the facts as they are, just as human pathology forms the basis for advances in human physiology. Similarly, if epistemology is to be a realistic study it must take human thinking as it really is and not as it ought to be as its starting point. For, as A. E. Heath points out,⁹ "The more we know of the conditions which determine our own behaviour, the freer we are." Similarly, the more we know of the ways in which our thinking can be erroneous the more clearly can we estimate its accuracy. A natural scientist, who is consciously aware that his categories of thinking are shaped by the rationalism of a scientific education, is better able to correct the inevitable onesidedness of his approach when he sets out to understand social, religious or æsthetic problems.

The sociology of knowledge, like the psychology of cognition, therefore, furnishes epistemology with the data for its true and proper function. The sociology of knowledge as an empirical study (and not as an evaluative one) seeks to throw light on the accepted methods of argument and to reveal the existence of styles of thought dominant in particular socio-historical periods. Hence,

⁹ P. 385 of his article *Philosophy and Contemporary Science* in *Science To-day*, ed. by Sir J. Arthur Thomson (London, 1935).

although a realistic epistemology will admit the fact that all knowledge is sociologically and historically determined, yet it will insist that it is within its own province to correct, to an ever-increasing extent, the errors arising from these conditions. It will do this by making explicit the circumstances in which thought develops and so embody this further knowledge in its own system.

The sociology of knowledge does not assume that the mere fact of the awareness of their divergent perspectives by intellectual antagonists will automatically cause them to agree but it does give those of them who have eyes to see, the possibility of taking a step away from their own relative position to one that, although still relative, yet seeks to include the insights of those who view the situation from various and divergent standpoints.

The real value of the sociology of knowledge is the plain truth of its principal thesis that there are fashions of thought that cannot be adequately understood so long as their social origins are obscure. Once these origins are laid bare, much light is shed on all controversies. Thus, in reviewing *Christianity Right or Left?* by the English lawyer, Kenneth Ingram, and *Motive and Method in a Christian Order* by Lord Stamp, R. H. Preston has used¹⁰ to great effect the main thesis of Karl Mannheim's *Ideology and Utopia*. By "ideologies" is meant mental fictions which originate unconsciously in the minds of the members of those groups within a society who seek to stabilize the social order. By "utopias" is meant wish dreams that condition the thought of those opposition groups which are seeking to transform that same society. Preston shows that Stamp tends to ignore those aspects of the present social situation which, as a Christian, he would deplore, since fundamentally he seeks to justify the main contours of the present economic order. Similarly, Ingram—as a Socialist—tends to ignore those aspects of capitalism which show its capacity to adjust itself to political changes and its alleged internal "contradictions."

The sociology of knowledge sets out to show how the social milieu provides the individual with a background of thought on the basis of which he deals with everything presented to him. This background acts as a kind of intellectual filter by operating selectively in relation to the spread of the new ideas. Similarly, the working out of a problem in the mind of an individual investigator depends on the psychological association of ideas in his mind.

The presence of the selective function, to use the phrase of the

older logicians, of the "apperceptive mass" accounts for the fact that original ideas tend to be expressed in an extreme fashion. A new theory, in the judgment of its author, is a corrective of knowledge already accepted by the social group to which it is offered but the "ideology" of this group tends to persuade the group to reject any such corrective to its knowledge. This leads the author to express his theory in a form more extreme than he really holds it; it then tends to become a real "antithesis" to the "thesis" of the society to which it is offered and it is only after a time that the "synthesis" can appear. The utility of this approach can be illustrated by considering why the Church of Ireland, which is in communion with the Church of England, is predominantly "Protestant," whilst in Scotland its counterpart is characterized by its "Catholic" tendencies. The Church of Ireland and the Episcopalian Church in Scotland are both the Churches of minorities. Hence the tendency is to react against the religious ethos of the Church of the majority. In Ireland this is Roman Catholicism, in Scotland it is Presbyterianism, and so the Church of Ireland is "low Church" but the Episcopalian Church in Scotland is "high Church."

The impact of the sociological method on education can be discerned by contrasting this approach to education with that of J. H. Newman in his classic *The Idea of a University*. Newman points out that although a liberal education is an "exercise of mind, of reason, of reflection," yet "we want something more for its explanation, for there are bodily exercises which are liberal, and mental exercises which are not so."¹¹

Newman adds that a professional education, for example, affords ample scope for the highest exercises of mind but that he cannot regard them as "liberal." On the other hand, he can accord that appellation to the palæstra, to the Olympic games of ancient Greece, to the equestrian pursuits of the Persian nobility, or to war in the age of chivalry, or to fox-hunting in the nineteenth century in England.

Manly games, or games of skill, or military prowess, though bodily, are, it seems, accounted liberal; on the other hand, what is merely professional, though highly intellectual . . . is not simply called liberal, and mercantile occupations are not liberal at all. Why this distinction? because that alone is liberal knowledge, which stands on its own pretensions, which is independent of sequel, expects no complement, refuses to be *informed* (as it is called) by any end, or absorbed into any art, in order to present itself to our contemplation.¹²

¹¹ P. 91 of edition edited by May Yardley (Cambridge, 1922). ¹² *Ibid.*

Nowhere does Newman penetrate deeper and go on to raise the question of why does "the gentleman" of ancient Greece, Persia, or nineteenth-century England expect no complement. Had he done so he would have discovered that each case he quotes is that of a leisured class and it is membership of the same sociological group, separated though they are by centuries, which accounts for the emergence of a common cultural characteristic.

Adolf Löwe has skilfully used the sociological approach to explain the increasing awareness of the shortcomings of the liberal conception of university education inside as well as outside Newman's Alma Mater. During the nineteenth century the Oxford ideal of the "gentleman-amateur," characterized by such qualities as versatility, open-mindedness, and the capacity to deal with people, proved more than adequate as a basis for training the sons of the upper strata of English society to take their place as leaders in politics, business, public administration, and the Church. Specialized knowledge was not needed.

However, this system worked because of singularly favourable social circumstances arising from the opportunity for economic expansion under conditions of political security which the extent of the Empire and the unchallenged strength of the British fleet made possible. These conditions are no longer present. It is now evident that political, social and economic adjustment cannot be left to unco-ordinated individual activity, but that a new equilibrium, both between the nations and within them, can only be achieved in terms of a rationally planned social order. For such a society the liberal education of the gentleman is not enough. In a world where statesmen have to choose between, for example, the relative merits of different methods of synthesizing rubber "the enlightened expert" will inevitably take the place of "the gentleman-amateur." To sum up the matter in Löwe's own words:

Our future intellectual leaders will not be able to understand, and still less to plan, even a small fraction of social life unless they know how to link together the various aspects of their experience into a unity of knowledge. But they can carry out this process of linking together only if they have learnt to make use of the findings of the specialist sciences and, at the same time, have acquired some direct experience of, say, the particular benefits and strains arising from industrial life, of nature as reshaped by technique, of social responsibility as increased by the new potency of planning.¹³

Thus far in this chapter we have concerned ourselves with the sociology of knowledge viewed as an empirical study that seeks to derive the relation that exists between ideas, opinions and convictions, and the social situations in which they emerge. There now remains the important issue of whether any empirical connections derived can have a bearing on the problem of validity. In other words, we have to deal with the question, "What has been added to our knowledge of a statement when its social background and origins have been worked out?"

There are four current answers to this question:

The first answer is that of the complete sceptic. It takes the form of arguing that the "truth" of any assertion whatsoever is really non-existent since the sociological approach to knowledge makes clear the worthlessness of the validity of any assertion so soon as its relevance to any particular social situation and group interest has been indicated. In practice this answer is rarely entertained with consistency, and it passes into the second answer which maintains that the validity of an opponent's assertion has been refuted once its social origins have been exhibited. This answer is aptly illustrated by both Marxism and Nazism. The former believes, for example, that to point out the origins of capitalistic thinking is a sufficient indication of its invalidity, yet he does not agree that to point out that Marxism is the product of discontented middle-class intellectuals, is equally to destroy the validity of its analysis. Similarly the Nazi believes that all "Jewish" physics is untrue because it is "Jewish," whereas "Nordic" physics is true because it is "Nordic."

The third answer is the one usually entertained in liberal circles. It is urged that we must not confuse a study of origins with that of validity or we shall commit the genetic fallacy since nothing has been said about the truth or falsity of a statement when its relation to a whole mode of thought, like liberalism or Marxism, has been shown and when that mode of thought in its turn has been related to the appropriate social milieu out of which it has emerged. To believe otherwise, it is maintained, is to be committed to a complete relativism for which all beliefs are equally true and therefore are equally false; the only way out of this absurdity, it is argued, is to hold to an absolute separation between the origin and the validity of a statement.

The fourth answer which, following Karl Mannheim, we shall call the relationist reply, steers successfully a middle course

between the relativistic and the absolutist answers to the question. Unlike the absolutist answer, the relationist reply maintains that no assertion can be formulated absolutely but only in terms of the perspective of a particular situation. However, unlike the relativist, the relationist does not believe that to admit this fact means that therefore all assertions are equally arbitrary. Truth alone is absolute. Human knowledge is always relative; it refers to rather than expresses truth.

It is possible to distinguish between these answers to the question by using the analogy of a steeple-jack inspecting a church, who, in the course of his activity looks at it from different positions—the steeple, the garden wall, the lawn, the roof, and so on. In terms of our analogy, the relativist says that since the church looks different from differing positions then any statement which the steeple-jack makes about the church is equally true, and therefore equally false; in fact he has no right to believe that there is a church there at all. The absolutist says that the observer simply sees the church and therefore he can truly say from wherever he is, “I see the church.” The relationist revises this reply and points out that the observer’s experience of seeing the church is more accurately represented by the statement “I see the church *from the steeple*,” or “I see the church *from the roof*.”

Thus to hold the relationist position means that when we become aware of the social background of a statement we do in fact add to our knowledge since we thereby delimit its content by particularizing its scope and thus we make more clear the extent of its validity. Moreover, it enables us to correct one statement of a problem and its attempted solution (both problem and solution being inevitably enunciated from a particular perspective) by comparing and contrasting it with other formulations of the same problem and their corresponding solutions. In terms of our analogy of the steeple-jack, it is by changing his position and so altering his perspective that he can estimate more accurately the relation between the dimensions of the steeple and those of a transept of the church than by staying in one position.

During the debates in the United States on the question of the Lend-Lease Bill, a Presbyterian minister from Nebraska who had done post-graduate study in Europe characterized an attack on President Roosevelt’s foreign policy as “Middle Western.” By this he did not mean that it was erroneous but that from the wider perspective achieved by his knowledge of Europe it was a limited

point of view. Formerly (he was a native of Nebraska) it was a point of view which he had entertained but now he was able to discuss it not only as, to use Mannheim's phrase, "a homogeneous participant" (that is, by dealing directly with the bare content of what is said), but by relating the point of view to its social origin. Thus, just as one cannot be in error and know it, so to be aware of the perspective of a particular point of view is to some extent to transcend it.

The transcendence is always partial. It is never complete, yet man cannot rest content with this limitation in his thinking. Hegel, for example, who was quite keenly aware of the fact that all human thought is historically conditioned, eventually sought to guarantee the truth of his idealistic historicism by maintaining that the Absolute had at long last reached its historical incarnation in the Prussian state of his day. Similarly Marx ended up by assuming that the enlightened class-conscious proletariat, as the bearers of the immanent meaning of the historical process, could achieve a socially undistorted view of society. Mannheim comes perilously near claiming a similar possibility for the social thinking of the socially unattached intellectuals. To use his own words:

One of the most impressive facts about modern life is that in it, unlike preceding cultures, intellectual activity is not carried on exclusively by a socially rigidly defined class, such as a priesthood, but rather by a social stratum which is to a large degree unattached to any social class and which is recruited from an increasingly inclusive area of social life. This sociological fact determines essentially the uniqueness of the modern mind, which is characteristically not based upon the authority of a priesthood, which is not closed and finished, but which is rather dynamic, elastic, in a constant state of flux, and perpetually confronted by new problems.¹⁴

As one of Mannheim's critics¹⁵ points out, this implication that the intellectuals are able to transcend conflicting tendencies since they are recruited "from an increasingly inclusive area of social life," is surprisingly like Marx's explanation of a similar capacity in the urbanized proletariat. To quote the *Communist Manifesto*: the proletariat is recruited from all classes of the population.

It is certainly evidence that Mannheim has not yet completely succeeded in coming to terms with the fact that although the intelligentsia are not as intimately bound up with the specific

¹⁴ *Ideology and Utopia*, p. 139.

¹⁵ Robert K. Merton in a remarkable article *Karl Mannheim and the Sociology of Knowledge* in *The Journal of Liberal Religion*, Vol. 2, p. 125 ff. (Chicago, 1941).

interests of classes based on economic difference as are rentiers or workers, nevertheless their vision is inevitably clouded by the peculiar interests and shortcomings of the scholar in any society. That to be a member of the teaching staff of a university carries with it its own limitations is evident from the fact that the point of view of a university professor can be so often legitimately dubbed "academic." As Thorstein Veblen some years ago remarked of academic learning in any culture:

In the apprehension of the group in whose life and esteem it lives and takes effect, the esoteric knowledge is taken to embody a systematization of fundamental and eternal truth; although it is evident to any outsider that it will take its character and its scope and method from the habits of life of the group and from the institutions with which it is bound in a web of give and take.¹⁶

In his more recent book *Man and Society in an Age of Reconstruction*¹⁷ and in his article *Present Trends in the Building of Society*¹⁸ Mannheim gives the justification for his trust in social scientists and technicians as those able to relate social adjustment to technical advance in such a fashion that democratic freedom can be conserved. He argues that they can "correlate the result of their partial observations in order to detect the reason for the maladjustments of modern society." With a truth of which he is unconscious, Mannheim's translator, Edward Shils, remarks that "the great voices of the Western European enlightenment speak once more,"¹⁹ through the pages of *Man and Society in an Age of Reconstruction*. In the eighteenth century human evil was attributed to the ignorance of legislators or to the tyranny of the privileged or to the wickedness of priests. Each of these explanations indicates only the shape which evil takes at particular points in history. However, in each case the proponent of an explanation thought that he had discovered the origin of evil in history. In spite of Mannheim's profound insight into the fashion in which group interest corrupts human thinking, he fails to see that the source of this corruption lies not within man's sociological make-up but in man as man. In short, contrary to what Mannheim states, the truth lies with those "who believe that this tragic

¹⁶ *The Higher Learning in America* (New York, 1919), p. 2.

¹⁷ E.T. by Edward Shils (London, 1940).

¹⁸ In *Human Affairs*, ed., by R. M. B. Cattell et al. (London, 1937).

¹⁹ In article *Irrationality and Planning* in *The Journal of Liberal Religion*, Vol. 2, p. 148 (Chicago, 1941).

irrationality is due to the eternally evil elements in human nature."²⁰

Mannheim's present dilemma symbolizes the position in which the critically minded liberal rationalist finds himself. After having read Freud and Marx he is too sophisticated to be satisfied with traditional liberal rationalism and yet he cannot bring himself to recognize the need for a *morality* of knowledge which takes the problem of man's sin seriously. Indeed we can say that unless the thinker can posit God both as the subject to which all human thinking (like the rest of human experience) ultimately refers and yet as transcending all formulations—theological or otherwise—of human knowledge, then he must needs absolutize something else, be it the Prussian State of the eighteenth century like Hegel, the class-conscious proletariat of Marx or the classless intelligentsia of Mannheim.

No one has done more than Mannheim to point out to modern man that the liberal rationalist belief that he is led to his conclusions by reason, unsullied by the interests of the social groups to which he belongs, is a delusion. Yet Mannheim's acute analysis fails at the point where he does not recognize that the source of the infection of the intellect by non-logical factors lies not, to adopt the language of Scholastic thought, in man's social "attributes" but in his "substance." As H. J. Laski once wrote, with greater profundity than he realized:

To exhaust the associations to which a man belongs is not to exhaust the man himself. You do not state the total nature of Jones by saying that he is a Wesleyan barrister who belongs to the Reform Club and the Ancient Order of Oddfellows.²¹

This means that man's perennial inclination to search for reasons which justify his already held conclusions is an attribute of the self as such. In other words it is man's sin which infects his thinking.

The attempt to escape from this situation by absolutizing a human point of view is an attempt to achieve the intellectual equivalent to religious salvation. But as always happens with idol-makers who try to build a Tower of Babel the ideological element

²⁰ *Loc. cit.*, p. 65.

I do not wish to suggest that Mannheim has not gone far beyond the insights of the Age of the Enlightenment at many important points. Indeed his whole work is an appeal to recognize the limitations of that outlook upon human life and destiny. See especially p. 357 of *Man and Society in an Age of Reconstruction*. I should also add that if Mannheim's latest book, *Diagnosis of Our Time* (London, 1943), had reached me before this book went to press, I would have considerably modified the foregoing argument.

²¹ *A Grammar of Politics* (London, 1925), p. 67.

in thought inevitably intrudes at the point where a thinker seeks to make his thought absolute. An illuminating illustration is furnished by the English naval historian, Admiral Sir Herbert Richmond, in his view of the function of cruisers. Thus in his *Sea Power and the Modern World*²² he speaks of

"light" cruisers—that is to say "true" cruisers and not their heavy supports, which are a modern innovation arising out of the increased size which cruisers (have) attained.

Throughout the whole book he keeps returning to this theme first enunciated by him in his *Economy and Naval Security*. The origin of this conviction that heavy cruisers are not real cruisers plainly lies in the influence of a non-rational factor having its social origin in the group to which Richmond belongs—naval men of the older generation in the British Navy. British naval officers of the younger generation, like American naval officers, simply refer to "heavy" cruisers as "cruisers" reserving the adjective to be used only for "light" cruisers.

The absolutization of a partial point of view appears not in his contention that light cruisers are the only true cruisers (he has of course every right to let words mean what he thinks) but in the theme to which he constantly returns, viz. that "true" cruisers are best for everyone—for Japan and for the United States—as well as for Great Britain.

The intellectual anxiety of man that leads to the absolutizing of his point of view is one particular expression of his essential nature in its perpetual quest for security. The anxiety that colours his reason is not simply his desire for physical survival but it is the anxiety of a self who is both involved in and yet transcends the natural process. Thus the real situation in which man finds himself is that, just as animal nature cannot be completely understood without understanding human nature as emerging from and yet being more than animal nature, so man cannot be understood except with reference to that which transcends man. This fundamental fact about man is aptly symbolized in his capacity to stand in judgment on *himself* as well as on nature or his reason or his conscience. Moreover, this transcendence is limitless, for not only can man judge himself but he knows that he judges himself and so he can judge his own judgment of himself.²³

²² New York, 1936, p. 270.

²³ On this whole problem see Reinhold Niebuhr's Gifford Lectures *The Nature and Destiny of Man*, Vol. I and in particular Chap. I, *Man as a Problem to Himself* (London, 1941).

(VII)

UNITY WITH FREEDOM: CHRISTIAN THOUGHT IN THE UNIVERSITY WORLD OF TO-DAY

"A Christian education would primarily train people to think in Christian categories."

T. S. ELIOT.

IN the last chapter it was argued that knowledge in the epoch before us will derive its "form" from the sociology of knowledge, just as the thought of the modern world was modelled on the mathematico-physical sciences. Moreover, we saw that as the implications of the sociological approach to knowledge were worked out, we were led to the much deeper problem of man's ontological status in the universe, a conclusion which brings up the question, "From whence shall we derive the ontology of knowledge in the coming *speculum mentis*?" My answer to that question is that we must turn to a source of enlightenment which is aware of the problem of human existence at a depth to which what is left of Western culture, whether democratic-capitalist or democratic-socialist, is not accustomed. In a day when the optimistic presuppositions of a culture are so obviously at variance with the fate of the civilization on which that culture depends, it is clear that a fresh source of wisdom is needed. And from where can that wisdom come unless it be from a re-interpretation of the Judaic-Christian tradition which, having outlasted the fall of many civilizations, has therefore a source beyond any one of them?¹

Western civilization at the present juncture is not unlike imperial Rome during the third century. In each case a tremendous social structure has had no purpose outside its own maintenance and that is why in each age the learned men have sought

¹ Here is not the place to give an "apologetic" for what I would call a Biblical *Weltanschauung*. The rest of this chapter is simply an appeal to those Jews and Christians who happen to be scientists, historians and the like, to take seriously their responsibility for finding, in terms of the presuppositions of their faith, some solution to the problem with which this book is concerned. I can only say to those thinkers who reject the Judaic-Christian attitude towards life (which in this book I assume) that they too have a similar responsibility and so they too must also work towards a solution of the same problem but on the basis of their particular presuppositions.

refuge in cynicism while the common people, in fear of the unknown, have followed astrologers and the like. In Gibbon's famous words, all religions, like all philosophies, were to the learned equally false, to the ignorant equally true, and to the magistrates equally useful.

Imperial Rome, seeking a faith which could justify its existence, seized upon Christianity and under Constantine sought to achieve the imperial dream of permanent peace by harnessing the force of the growing Christian Church. However, it was in vain. Rome fell but Christianity led by Augustine proceeded to lay the spiritual and indeed the intellectual foundations of a culture that for nearly a thousand years shone brilliantly in literature, painting, architecture and philosophy.

But that culture, too, reached its crisis. To translate literally the Greek word *κρίσις* (from which we get our anglicized "crisis"), *judgment* was uttered over medieval culture and it collapsed. Judgment is the perennial fate of all cultures. It is the time in the affairs of men, nations or civilizations when their shortcomings can no longer be ignored and they are called to account. Particularly is this true of the thought of an epoch, for then the unforeseen tendencies of its theories, their inner contradictions and their ultimate conclusions, become evident not only because new light is thrown upon them but mainly because they reveal themselves as inadequate in their application. Moreover, we can say that each crisis in the life of nations, universities, churches or civilizations is the expression of a judgment on the ideas that have inspired them. However, crisis is something more than judgment. For a time of crisis is also one of opportunity. The Chinese (and, following them, the Japanese) in their wisdom make up the ideograph equivalent to the English "crisis" by using two characters. One means opportunity and the other means danger.

Under the leadership of Augustine, the Christian Church in the early years of the fifth century was enabled to seize its opportunities and steer a passage amid the dangers of the Gothic invasions of the Empire. Can contemporary Christian thinkers perform for their day and generation the equivalent of Augustine's service to declining Rome? Can they ensure that, in the coming intellectual reconstruction, a new interpretation of the specifically Christian insights into the nature of man and the significance of the historical process will replace the twin pillars of the optimistic view of human nature and the inevitability of progress upon which—in

spite of their shaky foundations—the structure of modern knowledge was built?

The school of thought represented by R. M. Hutchins and Mortimer J. Adler would say that they can, if they will return to the intellectual synthesis of the Middle Ages, based on Thomistic metaphysics. We can readily admit that the modern mind has much to learn from the scholastic *speculum mentis*. However, that is a different story from seeking to put back the clock of history. To accept the inadequacy of a philosophy of life based on “modern” science alone does not mean that we can reject the new knowledge of man and the universe revealed by modern science. Such knowledge, of itself, may not provide an adequate foundation in the coming intellectual reconstruction but that there must be a place for it in the superstructure cannot be denied. The Scholastic system collapsed because it had no place for the experimental method or for the facts discovered thereby. In effect the Scholastic philosophers were attributing final and ultimate authority to one of man’s own creations. In other words, their synthesis became an idol, and, like any other idol, its feet of clay were revealed when it could no longer support the demands that life made upon it. In a world where the gap between Christianity and the common life is paralleled only by that between Christian thinking and secular knowledge it is salutary to remember that, as we have seen in a previous chapter, the medieval synthesis collapsed because the Thomistic separation between the truths discovered by human reason and those given in revelation was the reflection in the sphere of knowledge of the gulf which Thomas Aquinas placed between secular work (*opus manuale*) and specifically religious activities (*opera spiritualia*). The method adopted by the medieval Church to bridge the gulf was as disastrous in life as it was in learning for it meant that theologians claimed the right to dictate to scientists what they should discover and ecclesiastics assumed the power to dictate to merchants the prices at which they could buy and sell their goods, while, in politics, Hildebrand, rightly claiming that political activities should be subordinate to spiritual principles, wrongly thought that that meant that force could be used by the Church to coerce kings and people alike. As William Temple pointed out some years ago, when he was Bishop of Manchester, “The Papacy which issued interdicts was also soon to be found raising armies.”²

There could be only one end to this senselessness. In R. H. Tawney's apt phrase, the Church soon ceased to count because it ceased to think. As the dams of medieval restriction broke, each sphere of human activity: scientific investigation, artistic endeavour, business enterprise and political effort developed along autonomous lines.

In countries influenced by Calvin, like the United States, or in England where the established Church retained its medieval ethos, an attempt was made to view the separate spheres of human endeavour at one and the same time as autonomous and yet as fields within which Christianity was relevant. On the one hand, the relevance of Christianity to the world of science or the world of business was denied but, on the other hand, the relevance of Christianity to the life of the individual scientist or business man was affirmed. Thereby an intolerable tension between the life of the individual and the life of society was set up. This tension could not, however, endure under the influence of the self-sufficient, scientific-capitalist, bourgeois mentality,³ which has dominated modern man. Each separate sphere of human activity soon became secularized as modern man increasingly concerned himself more with the part than the whole.

However, neither could this simple secularization itself last and the final tragic outcome has been that within each sphere a basic principle was enunciated which sought to give meaning to each segment of human life. Thus in art the cliché, "art for art's sake," marked the final separation which emerged between artistic endeavour and Christian thought. Capitalistic economic enterprise, which had begun under Calvin as a divine vocation, soon became a sphere wherein the final arbiter was neither the Will of God nor an ethical norm but the doctrine that "business is business." Scientific investigation for Kepler had been, to use his own words, the attempt "to declare the grace of God's works to the men who will read the evidence of it." It soon deteriorated either into industrial research, governed by patent laws, or into an intellectual exercise, unrelated to the strivings of the masses herded into the hovels of the manufacturing towns of Europe and America, but governed by the high-sounding precept "truth for truth's sake." Political authority, whether of popes or emperors, which in theory at least, and so with some restraint in practice, had

been limited by principles more sacred than itself—the divine reason and the moral law—now claimed absolute authority: in common parlance “my country right or wrong” was viewed as expressing an adequate governing principle for the political relations between states. The attitude toward law within a state has been no better. On its theoretical side the study of law has deteriorated from jurisprudence, as the attempt to relate legal concepts to ethical concepts (so-called “normative law”) to the science of law (so-called “positive law”) which is solely concerned with correlating court decisions. In the practice of law, the task of the lawyer is generally conceived as the achievement of a means whereby the client’s wishes can be gratified rather than the discovery of a solution objectively right in relation to the claims of the contending parties and in the light of the existent legal code.

Thus in every field of human endeavour, the result has been that man has become so intoxicated by a concern with the part rather than the whole of life that what should have been construed as a means whereby God the Creator as an ultimate and transcendent end could be worshipped has instead been elevated to an end in itself, operating under its own laws. Thus the modern mind, by bowing Christian theism out through the front door, unconsciously has admitted through the back door an intellectuallized version of what Hume⁴ called “the first and most ancient religion of mankind,” polytheism. After four centuries of intellectual endeavour the modern man finds that he has exchanged the intellectual idolatry of Scholasticism for the intellectual polytheism of scientific positivism. In the universities of those countries which still retain liberal democracy, the influence of this intellectual polytheism has been calamitous, for it has meant, to use the frank words of Dr. William Temple in a sermon before the University of Oxford, that a university

is a place where a multitude of studies are conducted, with no relationship between them except those of simultaneity and juxtaposition.

In theory the liberal university rejects the attempt to teach a unified conception of the world. But it has not failed to teach a *Weltanschauung*. On the fundamental questions of life and destiny, as Kierkegaard has reminded modern man, neutrality is impossible.

⁴ In his essay *The Natural History of Religion*, p. 310, Vol. II of his *Essays, Moral, Political and Literary*, edited by T. H. Green and T. H. Grose (London, 1875).

Even to take up a *neutral* position is to take up *some* position. However, the contemporary university has not even been unconsciously neutral for it has taught more or less explicitly a philosophy whose fundamental tenets are that man, if not perfect, is, like the world itself, slowly getting better and that pre-suppositionless science, as the only way of reaching truth, is the main agent whereby—through education—this progress can be maintained. This creed, as we have seen in previous chapters, is now shattered beyond all possible hope of repair.

Either the lead toward a new interpretation of life which will guide mankind in the face of the catastrophic forces that have shaken the world to its foundation, will come from those fitted by training and inspired by moral insights adequate to furnish such a lead or the field will be left, to use Adolf Löwe's words, referring to Nazis in his native land, "to the mountebanks with their petty speculations in every sense of that word."

To the Christian university teacher comes, therefore, the summons to share in a task of supreme moment. It is to help create a *Weltanschauung* which steers a middle path between the Charybdis of liberal atomism and the Scylla of totalitarian dogmatism. Such a task will not be accomplished by the labours of the gifted few any more than the massive structure of modern science could be built by the genius of Roger Bacon. Modern science could only make great strides when an army of thinkers had been prepared by the collapse of the medieval world to venture forth on a voyage of new discovery. That is why Galileo in the seventeenth century rather than Roger Bacon in the thirteenth century can be called the father of modern science. In our day it is a work to which all scholars are called as they face the impact upon thought and scholarship of the crumbling of the economic, political and spiritual foundations of the world in which they live.

Since professional theologians rarely view their task as that of furnishing a synoptic account of God, man and the universe, Christian scholars in the so-called secular subjects have a peculiar responsibility for the working out of this new Christian "map of knowledge." The crying need is for Christian thinkers from the specialized fields of the natural and social sciences, history, engineering, architecture and medicine who, while rejecting the right of theologians to dictate their conclusions can yet unite with them in the common task of relating these conclusions to a theolo-

gical understanding of human destiny. The venture is not an easy one for the very categories of our thinking in every subject in the university curriculum have been moulded by a tradition which, as we have seen, disclaimed the need for such a unity even when it was preaching one unconsciously. The Christian natural scientist—the very unfamiliarity and strangeness of that phrase indicates the plight in which we find ourselves—has been content with a view, which, going back from Eddington through Faraday and Pasteur to Newton, maintains that religion and science can never clash because they never meet. This view of the matter has now seeped through to the student mind. The Chaplain to the University of Pennsylvania has remarked⁵ that students to-day no longer regard, as did their predecessors of the 1920's, science and religion as irreconcilable but

either as subjects that ought to live happily together, or else as attempts to answer quite different questions. Science, they say, is interested in the question, "How?" Religion is interested in the question, "Why?" They say the two can only quarrel when they trespass on the other's territory.

The leading school of economic methodologists in the universities of the Anglo-Saxon world, represented by Lionel Robbins in London and F. H. Knight in Chicago, gets rid of the problem of the relation between economic science and Christian theology in a very neat way. Economic science is regarded as being concerned with the relationship between the ends of human action and scarce means which have alternative uses, while the ends themselves are left to reside in a realm where the question of whether an action is right or wrong is viewed as one with meaning but yet as being quite incapable of any rational examination.⁶ It must be emphasized that this view of the relation between economic science and ethics is not bound up with the endorsement which the writers we have just quoted give to a *laissez-faire* economic system. R. H. Preston, a pupil of Robbins and a convinced democratic socialist, takes up⁷ a similar view so far as the autonomy of economic

⁵ J. C. Kolb, reported in *Forth* (New York), p. 22, February, 1942.

⁶ Cf. "A discussion of ends involves 'value judgments' and with regard to these there can be no agreed truth." (Austin Robinson in *Economic Journal*, Vol. LII, p. 246, London.) Presumably there can be agreement among economists about means. In that event, why do they disagree?

⁷ See *Christians in Society* by Edwin Barker and R. H. Preston, especially pp. 89 and 90, and note Preston's articles, *The Christian Case against Capitalism* in *Radical Religion* (New York), Vol. 2, p. 8, and *The Theology of the Malvern Conference* in *Christianity and Society* (New York), Vol. 7, p. 25.

science in relation to ends is concerned. The astonishing feature in the thought of a writer with Preston's insights is that he is so much under the influence of a liberal conception of knowledge that he fails to see that if, as he readily admits, Christianity is relevant to economic life then there must be some common ground between Christian theology as the intellectual interpretation of the Christian life and economic science as the intellectual interpretation of economic activity. This is not the place to indicate where that common ground lies. Suffice it for the moment to say that integral to Christian thought is a particular view of man as he is and a particular conception of human nature as it is and not only as it *ought to be*. Implicit in every attempt at economic theory is some view of man, of human nature. Any brand of economic science, therefore, agrees or disagrees with Christian thought or any kind of synoptic thinking, Marxist or Nazi, to the extent that they both do or do not work with the same idea of human nature. Had economists stood on their own feet and not been so much intoxicated by the prestige of the natural sciences, they would not have ignored this obvious truth—which is independent of the truth or lack of it, of the Christian outlook—and they would not have been so mystified by their own lack of agreement. Indeed, the very assumption that there is a possibility of agreement in the social sciences comparable to that in the natural sciences will preclude the awareness of why it does not, nor can, exist.

Herein we see why the typical university teacher of the social sciences finds pioneer thinkers like, in sociology, V. A. Demant in England and, in political theory, Reinhold Niebuhr in America, so incomprehensible since they are both claiming, in spite of their profound divergence of outlook, that there is a difference between the view of human nature—what the Germans call *Anthropologie*—given in the Christian tradition and that entertained in the liberal-scientific-capitalist outlook. Consequently they both argue that economic, sociological and political analysis with Christian presuppositions cannot lead to the same conclusions as, from the liberal-scientific standpoint, more orthodox theorizing in the field of the social sciences.

Christian historians have struggled hard to arrive at conclusions free from the bias of their religious affiliations. They have rightly rebelled against the view of historiography as, for example, entertained by Pope Leo XIII, who, in 1899, wrote in his letter to the French clergy on the study of history.

Those who study it must never lose sight of the fact that it contains a collection of dogmatic facts, which impose themselves on our faith and which nobody is ever permitted to call in doubt.⁸

However, in rebelling against such a purely propagandist view of historical writing, Christian historians have too often allowed their cult of impartiality to blind them to any sense of historical perspective. G. M. Trevelyan aptly remarks of the eminent historian, Bishop Creighton:

In Creighton's treatment of Luther, all that he says is both fair and accurate, yet from Creighton alone you would not guess that Luther was a great man or the German Reformation a stirring and remarkable movement.⁹

Christian historians have rarely seen that historical writing is not the mere chronicling of events but that it involves the use of criteria in terms of which the significance of the infinite number of historical events are evaluated before their recording appears on the printed page. Thus these criteria cannot be the product of a simple induction from the historical facts. No matter how "scientific" the historian tries to be in deriving or analysing the "facts" from which he draws his conclusions there can be no such derivation nor analysis which does not make use of some pre-supposition or criteria in view of which the facts are chosen and their significance understood. That is why a visitor from Mars who arrived on this earth just in time to witness the Battle of Waterloo would know more about the "facts" than the youngest schoolboy and yet he would understand infinitely less about the significance of what he had seen, precisely because he had no relevant criteria in terms of which he could interpret and evaluate it. In our own day if these criteria are not drawn consciously from the explicit acceptance of a particular philosophy (be it "dialectical materialism" or "racialism" or "Christianity") then they are borrowed unconsciously and therefore uncritically from the heritage of liberal optimism. This fact is graphically illustrated by the monumental *Cambridge Modern History*. The hidden premises of

⁸ Quoted by G. C. Coulton in *Medieval Panorama* (Cambridge, 1938), p. 435. Cf. p. 439 *ibid.* "Somewhere about A.D. 850 Agnellus, Bishop of Ravenna, undertook to write a complete series of lives of his predecessors in that see. He was, for his own time, a remarkable scholar: yet here is his description of his historical methods. 'Where I have not found any history of any of these bishops and have not been able by conversation with aged men, or inspection of the monuments, or from any other authentic source to obtain information concerning them, in such a case, in order that there might not be break in the series, I have composed the life myself, with the help of God and the prayers of the brethren.'"

⁹ *Clio, A Muse* (London, 1914), p. 50.

the editors can be readily seen from the fact that, as Lancelot Hogben once pointed out, less than fifty pages in ten volumes of more than one thousand pages each are devoted to the history of science. Lord Acton and subsequent editors were anxious to "unite the moral and intellectual realm with that of political force"¹⁰ or, in other words, to unite cultural with political history. But to this school of historians, science was hardly to be regarded as culture and hence it could be relegated to a position of little importance. Even more striking is the failure to indicate the bearing of economic development on the historical process. Here again, to these gentlemen-Whig historians, the processes of history did not need for their understanding any recognition of the importance of buying and selling.

Christian teachers of literature are, rightly, so eager to be free from moralizing as they engage in literary criticism that they have failed to recognize that G. K. Chesterton's words about himself are true for all writers:

I am quite capable of talking or writing about Dutch gardens or the game of chess, but if I did, I have no doubt that what I would say or write about them would be coloured by my view of the cosmos.¹¹

Christian philosophers perceive truly that their intellectual labours must not be carried on in order to buttress the orthodoxies of political parties or Christian denominations, but seldom do they recognize with Nicolas Berdyaev¹² that

If a thinker is a Christian and believes in Christ he is not in the least bound to make his philosophy conform to the Orthodox or Catholic or Protestant theology; but he may acquire the mind of Christ and this will make his philosophy different from that of non-Christian thinkers.

The cause of this failure of Christian scholars to relate their Christian convictions to the specialized knowledge of the academic subjects which they profess is not far to seek. It lies in the widespread but fallacious notion that religion is merely one subject among others in the curriculum of a school or college.

A few years ago, *The Times*¹³ editorially welcomed the appointment of a readership in Religious Education in the University of Oxford on the grounds that teachers of religious subjects would thereby receive a training comparable to that which teachers of

¹⁰ Quoted by Ernest Barker in an article in *The Times*, April 20, 1939, commemorating the completion of Acton's plans.

¹¹ *The Scandal of Father Brown*.

¹² *The Destiny of Man* (London, 1937), p. 7.

¹³ London, March 3, 1939.

other subjects have long enjoyed. This newspaper was not alone in thus regarding religion as one subject among others. A leading Anglican weekly, commenting upon the addresses given to the 1939 Conference of Educational Associations, urged that "the object of teaching religion in Universities is to put the subject on the same basis as other subjects in a University curriculum,"¹⁴ while at a service in Westminster Abbey for members of the Conference, the preacher, himself a distinguished theologian, took his stand upon the fact of specialization within university education, and went on to argue that each university should provide the opportunity for the specialized study of religion as one subject among others.¹⁵

Similarly in the United States, Zora Klain, the head of the Department of Education in Rutgers University, wrote in the correspondence columns of the *New York Times*:¹⁶

Just as school children have brought to them music, history, mathematics, literature and other of man's achievements, so ought they be permitted to examine man's progress in religion from primitive times to the present. What we need are teachers who can present religion as impartially as the school studies, mathematics, music and literature are presented. . . . Such instruction in the realm of man's progress would in a short time produce a society in which disagreement on religious matters would be on no different plane from disagreement concerning any school subject.

It would be difficult to find a more apt illustration of the two-fold influence of liberal-scientific thinking. In the first place, this calamitous influence is responsible (as in the other illustrations we have mentioned) for the isolation of religion as one subject among others and in the second place it explains the naïveté of outlook which can assume that differences of religious belief are on the same plane as those in physics or chemistry.

The influence of the notion that scientific thinking is "impartial" and "objective" is so profound that it vitiates the thought of many who are sufficiently sophisticated to realize that religion is not so much one subject among others as that which gives meaning to the whole. Thus while the professor of religious education in the University of Chicago can maintain that

Religion is not a compartmentalized experience, but a quality that potentially inheres in any and every experience,¹⁷

¹⁴ *The Guardian*, January 6, 1939 (London).

¹⁵ V. F. Storr reported in *The Times*, January 9, 1939.

¹⁶ November 24, 1939.

yet he is so much intoxicated by what he believes to be the scientific approach that he adds:

the school can . . . give the same objective treatment to religion as a type of social behaviour that it now gives to the sciences, history and the arts.

That the objectivity which he so much admires is never adopted by a science teacher merely enhances the absurdity of his vain appeal for "objectivity." This false idol has been attacked by a distinguished teacher of biology in the University of Birmingham with a vehemence of language which it deserves.

It is plain humbug for a teacher of chemistry to say that he aims at giving his students an open mind about the atomic weights of the elements.

He castigates those who hold the contrary position as "Genteel Whigs" for

they contend that education should aim at giving an unbiased view on controversial questions and that knowledge is worth pursuing for its "own" sake. . . . I cannot think of any form of legitimate instruction in which it is the business of the teacher to give an unbiased view on controversial questions. . . . The accepted technique of teaching chemistry does not imply that the Phlogiston theory has as much to be said for it as the Atomic theory. . . . Those who hold it (i.e., this theory of education) consistently would take pains to see that every citizen gave due weight to fool arguments concocted by military mystics to delude mankind into thinking that war is a picnic or a sacrament.¹⁸

Another professor of religious education, Harrison Elliott, goes even further than Bower for he finds *the basis* as well as *the method* of religious teaching in the universal acceptance of the best scientific knowledge as the source of light and learning. Thus he asserts that

while leaders in religious education have not been unmindful of the insights regarding human beings in the Bible and in the doctrine of the Churches, they have believed that programme and methodology should be based upon the best scientific knowledge available in regard to the nature of man and the conditions of his growth.¹⁹

Elliott then goes on quite boldly to admit that these developments were a product of the confidence in man and of the scientific attitude which originated in the period of the Enlightenment. Thus

empirical data and educational insights, rather than theological conceptions, have been the contributing factors in the development of programme and method in religious education.²⁰

¹⁸ Lancelot Hogben in *Dangerous Thoughts* (London, 1939), pp. 60, 143 and 144.

Therein is revealed Elliott's acceptance of the liberal-scientific point of view as the arbiter and criterion of what should be taken as being true of human nature.

In fairness to Elliott I should add that he does not agree with my interpretation of his writings at this point. He insists that I have misrepresented his position and he maintains, in correspondence, that, far from accepting the liberal scientific "progressive" view of human nature as a basis for religious education, he is seeking to resolve this dualism between the historic Christian standpoint and that of modern developments in educational theory. However, a careful re-reading of his book leaves me regretfully unconvinced. He sets out, to quote his letter:

to take the current knowledge and ideology into account and to re-interpret the Christian faith in terms meaningful to the present scene.

However, when he has to choose, he comes down to the "progressive" camp. Thus, he remarks that

the findings of science . . . seem to represent the most accurate knowledge available about physical and human *nature*.²¹ (*Italics mine.* A. S. N.)

Elliott's omission in making his position clear on this point lies ultimately in his failure to come to terms with the inadequacy of John Dewey's instrumentalism or he would not quote Dewey with such approval in making the following statement:²²

standards and practices which have been arrived at through the educational process should be followed with conviction, but should not be considered as rigidly fixed. They should be held as hypothetical and tentative, not in the sense that one cannot act because he is not sure, but in the truer sense that they are to be "tested and confirmed and altered through consequences affected by acting upon them." (John Dewey, *The Quest for Certainty*, pp. 263-4.)

Elliott, like his teacher Dewey, has not faced the fact that "consequences" can only be "tested" by criteria that transcend and yet are relevant to the consequences in question. Similarly Elliott's treatment of sin and human nature,²³ like his valuation of neo-orthodoxy, leaves us in no doubt that he cannot admit "the low estimate of 'natural' man and of his possibilities," characteristic of traditional Christianity, but that, following modern educators "and on the basis of the empirical data,"²⁴ he would emphasize the possibilities of human beings.

²¹ *Can Religious Education be Christian?* (New York, 1940), p. 136. ²² *Ibid.*, p. 317

²³ See especially Chapter VIII: *Religious Education and Sin and Guilt*, and Chapter XI: *Human Nature and Religious Education*.

²⁴ *Ibid.*, p. 4.

The question which immediately arises is "Why assume that 'modern' educators have a right to the last word?" Swing music is more modern than Dykes or Sullivan but we do not therefore propose to rewrite all hymn tunes. If modernity, *per se*, is adequate then let us substitute Rosenberg for Kant as the text for the study of German philosophy. The real reason why Elliott is so keen on "modern educators" is that "they have taken seriously the sciences, psychology, sociology and anthropology." In this respect Elliott is simply expressing his allegiance to the dualism which has been traditional in the liberal-modernist outlook. Now the body of knowledge within a science cannot be an ultimate criterion. Such, so far as science is concerned, can only be found in the presuppositions of the sciences, and they are trans-scientific. They are not like scientific knowledge itself derived from experience but in the Kantian sense they are *a priori* since they constitute the principles in terms of which experience is co-ordinated and, what is more, evaluated. Scientific facts are not inconsistent with a Biblical²⁵ *Anthropologie*, but there is a drawn sword between the latter and the modern, liberal rationalist *Weltanschauung* which is assumed by most modern educators and into which framework they fit the scientific facts. The question at issue is not whether we shall set the Biblical point of view over and against scientific knowledge, but whether we shall accept a Biblical or some other frame of reference for understanding human nature and into that fit the facts drawn from modern science.

Elliott is by no means the only influential author whose arguments reduce the discussion to such a clear-cut issue. An eminent philosopher, James Bissett Pratt, in his *Can We Keep the Faith?*, rejects the doctrine of original sin and instead regards sin as an act of the individual will expressing itself in a known and conscious defiance of an accepted moral standard. Pratt then invites his readers to judge between the traditional doctrine of original sin and his liberal-individualist conception by boldly asking the question, "Which of the two (views) seems more in accord with the tendencies of Western belief in the last four hundred years and the scientific tendencies of our own day?"²⁶

The verdict on this question of the educator holding the most influential position in the British Commonwealth—he is Director of the Institute of Education in the University of London—is

²⁵ By "Biblical" I do not mean "Fundamentalist." There is a difference between

emphatic. After reviewing the conflict of philosophies of education²⁷ he concludes that "Original Sin may be more than an outworn theological dogma after all," and asks the rhetorical question, "May not our happiness, as well as the saving grace of our education, consist in the end in a frank and humble recognition of the fact?"

Clarke is so far from taking his stand like Pratt or Elliott on an unqualified acceptance of the scientific-critical attitude of mind that he can categorically state that "the ultimate basis of all sound education is not Enquiry but Faith."²⁸ With Lotze, Clarke realizes that faith in science is itself a faith. The option is not between one view of human nature based on faith and another based on something more certain than faith. It lies between two views both founded on faith, either faith in the liberal-rationalist version or faith in the Biblical version of human nature and destiny.

Moreover, even from the standpoint of empirical verification there is little reason to believe that the liberal optimistic view of human nature is one which can be accepted. Clarke boldly declares that a thoroughgoing denial of original sin is one of the well-marked tendencies of modern men, which must take some share of the blame for our present troubles and be regarded as calling for corrective action by the processes of education.²⁹ The others are "that moral anarchism, the essence of which is a denial of the moral character of the State, and the assertion of an unrestricted right to the exploitation of Power" and the totalitarian mind for which "happiness is to be secured by uniform collective action working upon externals . . . under perfect discipline and no dissent."³⁰

The dissension between Clarke and Elliott is a striking symbol of the confusion of our time. Elliott, from a chair in religious education, in a theological seminary, seeks to expel "an emphasis upon man's sinfulness and inadequacy" from educational theory, while Clarke, a layman holding a chair in education in a "secular" university, wishes to make such a view of human nature basic to educational theory and practice. Might not the moral of that fact be that Elliott is not so "modern" after all?

Another important difference between Clarke and Elliott is in their view of the relevance of sociology to educational theory. Whereas Elliott is completely under the influence of the individu-

²⁷ Sir Fred Clarke in *A Review of Educational Thought* (London, 1936), p. 25.

²⁸ *Ibid.*, p. 7.

Ibid., p. 14.

³⁰ *Ibid.*, p. 16.

alism of the "progressive" theory with its insistence that each child must be allowed to grow in accordance with his own needs and interests so that nothing is interposed between himself and his own direct experience, Clarke accepts unreservedly Karl Mannheim's dictum that

no educational activity or research is adequate in the present stage of consciousness unless it is conceived in terms of a sociology of education.³¹

Hence, Clarke continues,

education must take as its main task the production of a socially determined type, and the debate must centre upon the nature of the type and particularly upon its ultimate destiny. Most of all it must concentrate upon the crucial issue of the double relation of the type to the society, on the one hand, the claim of the society to perpetuate itself in the type, and on the other hand, the claim of the type to become more than a type—a Person—and so to react fruitfully, if critically, upon the society which has produced him.³²

Clarke leaves the final word with theology by arguing that the ultimate concern of education is with two questions whose "answers lie deeper than the customary levels of politics, in regions of which most current sociological doctrines take little account." The questions are: "Why should society need to cohere?" and "How does it cohere?" He laconically adds that the answer to the first question "is so simple in form and so religious in expression that to some it may appear mere evasion, to others mere unction. It is: 'For the making of souls.' " To be a vale for soul-making, that is the end for which society and all its functions exist. As for the second question:

Perhaps the answer is that there can be no answer in set terms, so deep do the forces lie. But if we may venture a tentative answer in terms so simple and platitudinous that they seem absurd, we would say "By faith and love." The terms look empty enough until they receive their proper content. No definition or social science or system of law can confer that content. It can be given only by life and the grace of God.³³

Thus we have arrived at the conclusion that Christian scholars must work out an adequate conception of religious education, a conception which, although giving meaning to the whole of knowledge, yet does not confuse the spirit of the age with the spirit of the ages. Whether such a conception in practice is to be worked out through denominational schools is for the time being not the important question. However, what cannot be gainsaid are

³¹ In the preface to his *Education and Social Change* (London, 1940).

³² *Ibid.* p. 10.

³³ *Ibid.*, pp. 67-69.

the principles for which they stand, namely, that what one wants, if possible, is not religious instruction attached to the rest, but religious education, which means that the whole life and all activities of the school are penetrated by Christian faith.³⁴

In accepting this view of the matter, M. L. Jacks, the Head of the Department of Education in the University of Oxford, makes the salient point that "religious education," construed as one subject among many, is neither religion nor is it education, for if Christianity is true then it must unify all subjects taught. To quote his own words:

Religion in schools is much more than one among many subjects: it may be said, in a sense, to be the only subject, for it enters into all, and without interference acts as a co-ordinating and correlating force, giving them their significance in the scheme of things entire.³⁵

Moreover, Jacks argues that "the truths of scripture" cannot be learned in a period set aside for "religious instruction" but only in and through other subjects. He frankly acknowledges that such a view of the matter is not generally accepted and that, on the contrary, the school curriculum consists largely of a number of unrelated and highly specialized subjects with no underlying unity, a situation which he validly calls "secular anarchy." Jacks is speaking of the English scene but his strictures are equally applicable to the entire Anglo-Saxon world. Indeed, the view that religion is one subject among others so deeply penetrates the thought of our Western culture that even Roman Catholic educationists can urge the claim of "religion" to a place in the curricula of colleges. Thus:

Any person may have pretensions of highest cultural achievement with no understanding whatsoever of God. Yet no person omitting mathematics can pretend to cultural achievement.³⁶

There are many grounds for believing in the necessity of relating religion to education, but this is surely not one of them. To suggest that the Creator of the Universe is a fit object for cultural study would be ludicrous if it were not blasphemous. Some philosophy will be taught implicitly or explicitly in any educational system; that is one lesson that all who take seriously either Nazism or Marxism can never forget. In the pregnant words of Dr. William Temple—and words which apply to the whole educational process from the elementary school to the university:

³⁴ Dr. William Temple in a letter to the author.

³⁵ *God in Education* (London, 1939), p. 76.

³⁶ George Johnson in article *The Catholic Schools in America* in *The Atlantic Monthly*

We have supposed that it is possible to provide education which is religiously neutral, to which religion can then be added in greater or less measure. But, in fact, an education which is not religious is atheistic; there is no middle way. If you give to children an account of the world from which God is left out, you are teaching them to understand the world without reference to God. If He is then introduced, He is an excrescence. He becomes an appendix to His own creation.³⁷

Nothing makes this more clear than the history of higher education in the Anglo-Saxon world. In the United States, for example, the relation between Christianity and university teaching falls into three clearly defined stages. The first dates from the founding of the nine colleges of colonial times, beginning with Harvard in 1636. These colleges were modelled on the Oxford and Cambridge pattern, suitably modified to accord with the demands of a pioneer culture and the divergent Church-State relations of the different colonies, but nevertheless they retained a definite Christian orientation. Their main aim was to educate the leaders, lay and clerical, of Church-centred communities. During this period the colleges, sociologically speaking, were Christian in the sense that the members of their governing bodies and teaching staffs in the main were practising Christians, while attendance at college chapel or parish church was a wellnigh universally recognized custom. But, theologically speaking, the teaching during this period in such universities, like those of the Western world as a whole, soon became dominated by *assumptions* which were "a-Christian." To take but one example: in economics the conception of economic man (whose motives were guided by a philosophy of sell-in-the-dearest and buy-in-the-cheapest market) ruled supreme. Any attempt to suggest that there was a Christian conception of man which could be set over against that of Adam Smith would have been regarded—as indeed it is to-day but with not quite the same self-confidence—as intellectual obscurantism. It is true that Francis Wayland, the President of Brown University, was the author of a popular text-book, *Elements of Political Economy*, in which he set forth the views of "an American, a Christian and a gentleman." However, the book itself is a sanctification of the philosophy of expanding capitalism. It teaches "that the Creator has subjected the accumulation of the blessings of this life to . . . determinate laws" and that economic prosperity is "one of the rewards which in the course of events God bestows upon wisdom

and virtue.”³⁸ Thus we can say that on the plane of conscious living the universities were “Christian” but at the deeper level of unconscious experience they were “a-Christian,” not to say “anti-Christian.”

This contradiction was quickly resolved. The business man's demand that there should be no political control over trade and industry was soon reflected in education so that the educational system grew up in complete independence of federal control. That was not all. Under the influence of the legacy of the enlightenment it was naïvely assumed that, since religious loyalties had embittered political and economic controversies in Europe, the settlement of such controversies in the New World could be accelerated by eliminating religion, a procedure which subsequent history has shown to be as sensible as trying to settle the quarrels of children about toys by taking away the toys. These assumptions laid the foundations for the second stage in the evolution of the relation between Christianity and higher education. It was reached when Thomas Jefferson founded the University of Virginia. His basic conviction was that the independent states required colleges drastically different from those which had been founded during the colonial era. The version of Protestantism that increasingly dominated the life of the young republic provided a theological justification for the notion that religion was a personal affair and not the tap root of a culture. Individual conversion was construed as the heart of Christianity and thereby the public mind was psychologically prepared for Jefferson's view that a college should be supported by individuals, not as Christians but as citizens. No clear distinction was made between *control of a college by ecclesiastical gatherings* (which is one thing) and *Christian thinking* (which is quite another). The result was that the curriculum as well as the administration broke loose from any Christian moorings. Jefferson's pattern for the University of Virginia was followed in one respect by the founders of Williams, Bowdoin, Amherst and others in that these colleges, too, were founded free from Church control. The result turned out essentially to be the same; there arose, alongside the colonial type of institution for higher learning based on a church controlled philosophy of education, the privately endowed colleges, founded to produce intelligent leaders for a secularized society.

³⁸ I am indebted for these quotations from Francis Wayland to Stuart G. Cole's *Liberal Education in a Democracy* (New York, 1940), see p. 210.

Gradually the Jeffersonian pattern began to influence the earlier type of college and Kings College (later called Columbia University) together with the College of William and Mary were among the first to abandon Church control for democratic self-government.

The result of this non-ecclesiastical mode of government (which did not matter) and an a-Christian curriculum (which did) soon showed itself. It led to an ever-increasing tension between a conscious acceptance of Christian "practice" (evidenced by attendance at Church services and allegiance to Christian moral codes) and an unconscious rejection of Christian "theory." This tension could not last and it was resolved in terms of an increasing refusal to recognize in any way the claims of Christianity. In the lives of students, Sunday became the day of the week characterized by the opportunity to make up arrears in work rather than the day to attend church. In the sphere of university organization the resolving of this tension which marks the beginning of the third phase of the relation between higher learning and Christianity was perfectly symbolized by the emergence of State universities where theology as a subject for academic study was deliberately excluded.³⁹

Among university teachers the experience of William Graham Sumner, the famous Yale sociologist, who began his career as a priest in the Episcopal Church, is typical. It is related that one day he visited the Peabody Museum and saw there the exhibit illustrating the evolution of the horse. Declaring that so far as he was concerned such evidence proved the theory of evolution, he began to explore the possibility that this same process of gradual development might be traced in the institutions of human society. Carrying over this analogy from biology into sociology and forgetting entirely the fact that in any sociology there must be an implied *Anthropologie* he completely ignored the possibility that theology might have some relevance to sociological research. It was not surprising, therefore, that when asked on one occasion why he had given up his religious faith, he replied that he had never given it up but that he had simply filed it away for a time in a pigeon-hole and when he returned later to look for it, he found that it was gone.

The realization that such a remark was an index to the true

³⁹ The analysis given above in terms of the history of the American universities is equally applicable to the English scene. See the article on *University and S.C.M. at the End of an Era* by Arnold S. Nash in *The Student Movement*, March, 1944 (London).

position of Christianity in the university world lay behind the recognition by the Churches of the United States that the university and college field was one for missionary activity. This story, graphically told by Clarence Shedd in his *The Church Follows its Students*,⁴⁰ is without parallel in any country in Christendom. The theory underlying this work was governed by two fundamental, but often unrelated, convictions. The first was that students should be converted to a convinced church membership. This was particularly true in communions like the Episcopal Church and the Lutheran Churches where there was and still is a strong sense of belonging to a historic Christian community. The second conviction—and this was particularly true of those Protestant denominations most influenced by liberalism—was that students should be permeated by “Christian ideals and principles.” Thus, in both cases, the task was envisioned in terms of committing students to Christianity rather than of forming *Christian* students. A student who is a Christian, as W. A. Visser ’t Hooft has repeatedly urged, is not the same as a Christian student. In this striking distinction is revealed the heart of the problem as Christianity in its relation to the university world enters into its fourth phase. In other words the fundamental question now becomes: How can the Church help students to discover their Christian vocations as students in the sphere of “secular” scholarship itself? The task is not an easy one. God’s call in this realm is particularly addressed to the Anglo-Saxon student world that it should continue the task so ably begun by the French Student Christian Movement before the outbreak of the present war. To quote from the report of their conference on “The Christian University,” held at Bièvres:

... essential as it is, it is not enough to proclaim the Gospel to students and to glorify God *in* the University; but the university itself must also glorify God, and our studies must themselves be offered as a sacrifice to God. Too often we are content to say and to go on saying that science and philosophy and all the wisdom of this world cannot bring salvation to man. We ought to tell the university that it does not know—how indeed should it know?—what it means for a Christian to be a scholar, to be a philosopher, to be an historian. We have no difficulty in renouncing all such heresies as “Christian” science or “Christian” philosophy; but we cannot give up seeking what God demands of us when he gives us a vocation to be scholars, philosophers, and historians.

That the situation is not hopeless is evident from the fact that many Christian thinkers in such an apparently unlikely sphere as

psychological medicine have seen the problem involved and are making vigorous attempts to bring together Christian insights into human nature and the findings of modern psychology.⁴¹ Some of them would urge that the Christian psychiatrist goes out of his field if he seeks to give any religious orientation to the patient and that his task, like that of any other psychiatrist, is only "to open the eyes of the patient and not to turn his head in any particular ecclesiastical direction."⁴² Others would claim that this distinction is untenable in theory and impossible in practice. Within the sphere of surgery they would argue that the distinction between what the surgeon does for the patient's body and what he might do as a person for the patient is certainly possible but that in psychiatry the whole human self is under treatment and that therefore the psychologist's personal attitude toward life and consequently his religious convictions (or lack of them) must affect the very methods of treatment he uses. In the words of William Brown,⁴³ "sooner or later the patient asks for a philosophy of life. He or she does not call it that but so it is."

In France, André Schlemmer, from the standpoint of a Calvinist theology, has worked with considerable success at this problem. He has presented his conclusions in his *The Crisis in the World of Thought*.⁴⁴ In it he considers the relation between faith and knowledge, and analyses the Christian doctrine of the human mind and the human will, as it sheds light on modern psychological practice, by relating his profession as a medical man to the basic Christian presuppositions for human living. He is at his best in showing that the conclusions of recent psychology reinforce—if it were needed—the Judaic-Christian conception of man. The fact that we are not led to our conclusions by the reasons we assert but rather look around for reasons to justify our conclusions simply means that man's sin infects his thinking. The fact that our feelings and attitudes come out of the unconscious self into our consciousness only in so far as they are acceptable to our self-esteem, simply indicates that man's sin is an aspect of the will which can never

⁴¹ Foremost in this field are the research groups of the *National Council for Medical and Pastoral Co-operation*.

⁴² Leonard F. Browne of the Tavistock Clinic, London, in a conversation with the author. Dr. Browne added that the personal religious conviction of the psychologist will unconsciously affect some patients even though he makes no deliberate attempt to direct them into any particular religious outlook.

⁴³ In a conversation with the writer. See also Dr. Brown's *Mind, Medicine and Metaphysics* (Oxford, 1936).

⁴⁴ E.T. by Pauline de Merz (London, 1940).

be completely eliminated since it is poisoned at its source.⁴⁵ Schlemmer finely summarizes his conclusions in the following words:

The whole crisis in the realm of thought is not a crisis in science, sanity of opinion and ethics. It is not even a philosophical crisis. *It is a religious crisis.* Underlying the whole crisis in the world of thought is a *judgment of God concerning man's use of his intelligence.* Everything is called into question again, and the methods that have inspired occidental thought through the last centuries have revealed their common vice, the worm that was in the fruit—"anthropocentrism." Since man has pretended to be the centre, judge, reason and goal of everything, he has destroyed himself. When he sets himself as self-sufficient, free and autonomous—in one word, "as a God," he is going back, becoming lower than an animal.⁴⁶

In the second chapter he deals with the problem, "How is it possible to create or restore a right way of thinking, and to lay the foundations of sound intellectual construction?" Here Schlemmer takes a radical departure from the usual fundamentalist philosophy, which like all other scholastic systems, ancient and modern, whether Thomist, Marxist or Nazi, has an answer to every question. The Word of God, not any system, whether liberal or fundamentalist, which seeks to express it, is alone sovereign and final. The author then shows, within this context of God's sovereignty, that even in the realm of the intellect the appropriate human attitude is one of faith, and by faith he does not mean credulity; on the contrary he argues that faith is that which gives reason its final certitude.

In the last chapter, *Faith and Medicine*, Schlemmer develops his view of the revealed Word of God with special references to his own vocation in the field of medical psychology.

All vocation comes from the Almighty and forbids the separation, disastrous for the religious as for the moral life, of the supernatural from the natural, the sacred from the profane, or of the spiritual from the practical life.⁴⁷

Hence a Christian physician is not a Christian man practising materialistic medicine but he, like any other Christian scholar must recognize that Christianity, if faithful to its origins, is a universal principle of thought with universal implications.

⁴⁵ In the words of Jeremiah: "The heart is deceitful above all things and desperately wicked; who can know it?" (xvii. 9).

⁴⁶ *Loc. cit.* p. 25.

⁴⁷ *Ibid.* p. 60.

What, therefore, is the conclusion of the matter? It is that the Christian Churches need a fellowship of lay theologians or Christian scholars who would view it as part of their vocation as a Christian intelligentsia to create a Christian world view within which the conclusions of the specialized subjects of the university curriculum could be given their ultimate meaning in terms of a specifically Christian philosophy of man and of his relation to the historical process. The task is one in which all Christian scholars whether they be natural scientists, social scientists, historians, philosophers, literary critics and the like are called to co-operate. It is nothing less than the creation of a Christian *speculum mentis*, which, on the one hand, avoids the Charybdis of the liberal conception of the complete autonomy of each academic subject and, on the other, the Scylla of totalitarian scholasticisms in which facts have to be twisted into a dogmatic framework. No one who knows the history of the medieval university under the complete control of ecclesiastics or of the modern university under the domination of the single political party in totalitarian countries will wish to deny that freedom and independence in teaching and research must be conserved. Neither can it be disputed that one task of the university is to witness to the value of the independent and critical pursuit of truth as such and not to buttress the doctrines of political parties or religious bodies. The university, in fact, betrays its mission as soon as it claims to teach final and ultimate truth in the form of scholastic, whether Thomistic or Marxist or Fascist, systems which have no place for new facts. We may see "as through a glass darkly" but of one fact we can be certain. It is that any intellectual synthesis which declines to believe that "the Lord hath yet more light and truth to break forth from His Word" is intellectual idolatry.

Such a task can only be accomplished by a world-wide movement of Christian scholars who can follow the trails blazed ahead by pioneers in this field as apparently diverse as William Temple and Reinhold Niebuhr; Jacques Maritain and André Philip; V. A. Demant and J. H. Oldham; T. S. Eliot and Nicolas Berdyaev; Paul Tillich and W. A. Visser 't Hooft. The names of these scholars, born as they were in America, France, England, Scotland, Russia, Germany and Holland, are a significant reminder that the same economic forces which have shattered the system of self-sufficient capitalist sovereign states have also rendered it

the new intellectual synthesis can be worked out. The branches of the Christian Church to which they belong; Lutheran, Roman Catholic, Calvinist, Anglican, Presbyterian and Russian Orthodox—and to remember the extensive measure of their agreement in diagnosing the world's ills—indicate that the traditional theological lines of demarcation are as *demodé* as the historical causes which led to their erection. The academic subjects which they represent: political theory, literature, philosophy, law, sociology, economics and theology, are a reminder that Christian teachers of secular subjects have a peculiar responsibility, since what is now at stake is not so much which school of traditional theology is the true one but what is the relevance of theologically based presuppositions to the so-called secular subjects when these subjects—making the “scientific” model of knowledge their idol—have vainly sought to be “presuppositionless.”

There is little reason to expect much guidance from the ranks of the usual type of Anglo-Saxon academic theologians either in that part of the work of intellectual reconstruction which involves the attempt to introduce Christian presuppositions into the study of, say, literature, history and the social sciences, or in that part which seeks to relate the conclusions of the specialized subjects of a university curriculum to a theological understanding of man and his destiny. The irrelevance of much that passes for theology in Great Britain is well symbolized in a recent book, *The Study of Theology*.⁴⁸ In spite of an explicit claim by the editor, K. E. Kirk, the Bishop of Oxford, to the effect that, among other things, the book deals with the relation between Christianity and “the surrounding world of science, philosophy, history and secular thought and knowledge in general,” one searches its pages in vain for an awareness of the fact that theology is anything other than the investigation of the history of doctrine or the literary study of the Bible or the ecclesiastical aspects of history. In short, we fail to find any recognition of the need for the Christian equivalent to the intellectual synthesis of biology, economics, psychology, philosophy, and the like, which the Marxists or the Nazis readily furnish, in terms of their distinctive and calamitous presuppositions, for any student who asks for it.

In the United States the situation is little more helpful. Most Protestant theologians vainly seek to make theology “scientific” by cutting it free from metaphysics and history and resting it on

religious experience. Theology then becomes thinking about our nice feelings rather than thinking about God and His relation to man and the world. Among those who have not thus bowed the knee to the Baal of "science" the situation is not much better since they generally relapse into the two errors of the medieval world view. The first is illustrated by the words of a distinguished bishop who dissuaded a student from his conviction that his vocation as a Christian was to become a university teacher, and instead persuaded him to seek ordination on the grounds that "a Christian professor uses the margins of his time in doing God's work whereas the Christian minister uses his full time." The second error is well illustrated by a description of some of the members of the Guild of Churchman-Scholars in a recent issue of the *Church Review*. It reads they "are convinced that the historic Christian faith has its proper evidence as valid for religion as naturalistic evidence is valid for secular knowledge."⁴⁹ This of course is strictly true but too often it means that the paramount problem for University teachers here and now, viz. the bearing of Christian thought on secular knowledge, is ignored and the teacher is left to live in a *bi-verse* and not a *universe*; in short he becomes a Christian "schizophreniac."

However, to inveigh against theologians is not to condemn theology. In fact the foregoing argument is a plea that theology should be restored to its rightful position as queen of the sciences in the original sense of the term "science." Such a restoration would begin with a thorough-going criticism of the self-sufficient, scientific-capitalist outlook which has moulded the thinking of the modern world. The Nazis and the Communists are no more free from that domination than the bourgeois plutocracies; it is no better from the Christian perspective to worship race or class than idolatrously to elevate "business is business" into an eternal principle. The Christian intellectual takes his stand on the conviction that lesser loyalties, like class, race, nation, science or Church, must take their place as subservient to that which transcends and judges them all—God.

To argue thus is not to suggest that theology, as man's attempt to understand God's self-revelation, can dictate conclusions throughout the whole realm of scholarship and learning. That was the cardinal error of medieval ecclesiastics; the early scientists, economists, philosophers, and historians rightly rebelled against

such domination. Neither theology nor theologians but God is sovereign. Yet theology as a subject must have its place in any future *speculum mentis* for there will always be need for the critical study of the Bible as the record of God's revelation to His chosen people and in the life, death and resurrection of Jesus. However, theology in this sense, unlike its counterpart whether Catholic or Protestant in the past, must be related to and be illuminated by the wider setting of man's knowledge of the universe in which it will occupy its appropriate position but also to which it gives ultimate meaning.

To sum up the purpose of such an order of Christian scholars we can say: the crisis is a world crisis and therefore such a movement must be envisaged in world terms. Its purpose would be to enlist Christian scholars throughout the world in a four-fold task:

1. To discover an answer not only to the question: "How can we as individuals serve God in the University?" but also to the question: "How can the liberal democratic University itself be a witness to the Glory of God?"
2. To discover the meaning of Christian vocation for a man or woman who is a chemist, sociologist, historian, psychologist, mathematician and the like.⁵⁰
3. To apply Christian criteria in working out the presuppositions which are relevant to the study of individual academic subjects and to discover the place in a Christian *speculum mentis* of the knowledge given in such specialized subjects.
4. To work towards an intellectual synthesis for the twentieth century which, as an interpretation of human life and destiny, can be set over against the positivistic, the Marxist, the liberal humanitarian *Weltanschauungen* now current in the liberal democratic world. Such a *speculum mentis* will be dialectical between the two poles of unity and freedom. Like Scholasticism it will derive its unity from its theological basis which will provide its presuppositions. But it will differ from Scholasticism in that the specifically theological sections of such a map will not determine the nature and character of the "non-theological" sections. God, not theology, or any other system is sovereign.

⁵⁰ The pages of many scientists who are Christians often express hints of an unconscious desire to relate scientific research to a cause which is literally "trans-scientific"; thus a leading spectroscopist writes: "Reading scientific journals is sometimes hard work, but it frequently happens that the lifeless perusal of an apparently dull memoir is interrupted by a sudden awakening of interest; we realize the boldness of the thought and the refinement of the technique which lie behind the work, and a sense

NOTES ON BIBLIOGRAPHY

THIS bibliography is far from exhaustive. It merely seeks to indicate the more important books that are relevant to the problem with which this book deals. There are some serious omissions. This is inevitable since, in a sense, the whole of human knowledge is relevant to the fate of the university in the modern world. A more conscious criterion of selection, however, has its origin in the fact that I have deliberately restricted myself to those books and journals to which I personally have had access.

A. S. N.

Basic to the discussion of the impact of the contemporary crisis on any institution in Western culture—be it the family, the university, the economic order, or the state—is an analysis of the crisis itself. Each of us must work out an instrumental analysis which seems adequate to the task of disentangling the many strands that make up the tangle of our present chaos.

Among the wealth of material that I have found illuminating I would single out the following:

Reinhold Niebuhr:

Reflections on the End of an Era (London, 1934)

Beyond Tragedy (London, 1938)

Christianity and Power Politics (New York, 1940)

The Nature and Destiny of Man, Vols. 1 and 2 (London, 1941 and 1943)

Nicolas Berdyaev:

The End of Our Time (London, 1935)

Christianity and the Class War (London, 1933)

The Bourgeois Mind (London, 1934)

Paul Tillich:

Interpretation of History (London, 1936)

Jacques Maritain:

True Humanism (London, 1938)

Karl Mannheim:

Man and Society in an Age of Reconstruction (London, 1940)

Diagnosis of Our Time (London, 1943)

Among less well known books in this field the following should also be mentioned:

The United States and Civilization by John U. Nef (Cambridge, 1942). This book, by a distinguished economic historian, gives an excellent evaluation of contemporary civilization, considered from the standpoints of art, education, science, religion, politics and economics.

The Religious Situation by Paul Tillich (New York, 1932). It is impossible to exaggerate the importance of this volume, which first appeared in Germany in 1926 under the title *Die religiöse Lage der Gegenwart*. In it Tillich explores the whole world of culture—science, art, philosophy, politics, education—and inter-

prets the religious values for which opposing movements stand. The translator, H. Richard Niebuhr, contributes an important and illuminating preface for Anglo-Saxon readers.

Our Prodigal Son Culture by Hugh S. Tigner (Chicago, 1940) is an all too brief analysis of the sickness of an acquisitive and "scientific" society. See especially Chapter 6, *The Lyrical Modern Epoch*, and Chapter 9, *The Superstition of Science*.

The Religious Prospect by V. A. Demant (London, 1939) is an "essay in theological prophecy." This book gives an analysis of current totalitarianism and the plight of liberalism with a penetration that places the book among the most important of our age for all who seek to understand the problem of human existence.

On to Orthodoxy by D. R. Davies (London, 1939) is a brilliant analysis of the collapse of the liberal "dogma" written by a man who is both a musical critic and a political theorist in terms of his intellectual pilgrimage through pacifism and Marxism to a specifically Christian philosophy of man, history and society.

Religion in an Age of Secularism by George F. Thomas (Princeton, 1940) can be obtained by writing to the Secretary, Princeton University, Princeton, N.J. This inaugural lecture of the Professor of Religious Thought in Princeton gives an incisive critique of the presuppositions of secularist thinking and its influence on culture.

Speculations by T. E. Hulme (London, 1923). There is an irony which Hulme would have been the first to admire, had he lived, in the publication of his literary remains in the *International Library of Psychology, Philosophy and Scientific Method*. Hulme was one of the first to recognize that we are at the end of a way of thought which, basing itself on scientific method, has dominated the Western world since the Renaissance. Hulme was at the same time a poet, an art critic and a philosopher, and this collection of essays shows that when he was killed in action at Nieuport in the First World War, the world of learning suffered a loss comparable only to the death of Moseley, the discoverer of atomic numbers, at Gallipoli.

Hulme's line of thought has been presented somewhat more systematically by Michael Roberts in his *T. E. Hulme* (London, 1938). Roberts, who is a mathematician turned poet and literary critic, has independently carried on Hulme's approach to modern culture in his *The Modern Mind* (London, 1937) and in *The Recovery of the West* (London, 1941).

It is an ironic commentary on liberal rationalism that it has so largely ignored the work of the one thinker, L. T. Hobhouse, who might have saved it from its intellectual bankruptcy. However, Hobhouse's scholarship in sociology, anthropology, history, and comparative psychology was too massive for the word-spinning philosophers; his sense of the importance of epistemology and ethics separated him from the fact-loving natural and social scientists, while his keen appreciation of the reality of evil and the penetration of his thinking was too much for the rest of the professional intelligentsia, who preferred the more easily derived and more comforting generalizations of H. G. Wells *et al.*

Hobhouse's synthesis of human knowledge is set forth in his quadrilogy:

The Metaphysical Theory of the State (London, 1918)

Social Development (London, 1924)

Morris Ginsberg in *L. T. Hobhouse: His Life and Work* (London, 1931) gives a masterly presentation of Hobhouse's thought.

The above "synoptic" studies of Western civilization should be supplemented by specific attention to the economic and political development of the modern world. From among a spate of material the following can be singled out:

Government and the Governed by R. H. S. Crossman (London, 1939) can be recommended to all who look for a signpost in seeking to understand the political and economic aspects of the modern world as it has grown up and as it is to-day. It gives an excellent bibliography. The author was an Oxford University teacher, who has been engaged for some years in municipal and national politics.

The Rise of Liberalism: the Philosophy of a Business Civilisation (London, 1936) by H. J. Laski gives a brilliant, and indeed indispensable, analysis of the economic and political roots of the modern mind. It should, however, be read with caution since Laski has never really integrated the liberal and Marxist elements in his thinking. Moreover, he has no adequate understanding of either the significance of the natural sciences or the role of religion in the life of society.

The End of Laissez-faire (London, 1926) by J. M. Keynes. Although published nearly twenty years ago this lecture reads like a contemporary essay.

For a treatment of the influence of the scientific movement in the creation of the modern mind *Science and the Modern World* by A. N. Whitehead (Cambridge, 1925) is unsurpassed.

The Metaphysical Foundations of Modern Physical Science by E. A. Burt (London, 1925) is also indispensable. In so far as the rise of modern science can be studied in terms of the history of ideas, out of relation to their social context, this book gives a brilliant exposition of the fundamental concepts which governed the thought of the founders of the classical scientific scheme—Copernicus, Kepler, Galileo, Descartes, Boyle and Newton.

Among histories of science proper, the most useful single volume treatments of this subject are:

A History of Science and Its Relations with Philosophy and Religion by W. C. D. Dampier-Whetham (Cambridge, 1927) and *A Short History of Science to the Nineteenth Century* by Charles Singer (Oxford, 1941).

For more exhaustive but as yet uncompleted studies two works stand in a class by themselves:

(1) Lynn Thorndike: *A History of Magic and Experimental Science*. Vols. 1 to 6 have been published (Oxford, 1923-41) taking the story to the Seventeenth Century.

(2) George Sarton: *Introduction to the History of Science*, Vols. 1 and 2 have been published (Cambridge, 1927 and 1931), and Vol. 3, which deals with Science and Learning in the Fourteenth Century, is in preparation.

Abraham Wolf has performed a service of pioneer importance in relating the progress of science to technical discoveries and inventions in his two volumes: *History of Science, Technology and Philosophy in the Sixteenth and Seventeenth Centuries* (London, 1939) and *History of Science, Technology and Philosophy in the Eighteenth Century* (London, 1939).

The history of science was given a completely different turn in Anglo-Saxon countries when *Science at the Crossroads* was published in England in 1931. This book consists of the papers presented to the International Congress of the History of Science and Technology, held in London during the summer of that year, by the delegates from the U.S.S.R. However, *Science and Social Welfare in the Age of Newton* by G. N. Clark (Oxford, 1937) should be consulted first since it is the best introduction to the historical study of the relation between the natural sciences and society.

The study of the relation between science and society in the contemporary scene was stimulated by the publication of *The Frustration of Science* by Frederick Soddy *et al.* (London, 1935). The authors of this book, a group of eminent British experts in chemistry, physics, agriculture, aviation and medicine, give an interesting survey of the subject described in the title. The book suffers from a somewhat naïve acceptance of the analysis of Fascism current among Marxists in the middle years of the last decade.

The most important book in this field is undoubtedly *Social Function of Science* by J. D. Bernal (London, 1939). Even when allowance has been made for the author's somewhat uncritical attitude to Soviet Russia and the Stalinist view of Marxism, the importance of this book to all who seek to evaluate the role which science plays in modern society cannot be over-emphasized. Its author, who was made a Fellow of the Royal Society at the very early age of thirty-six for his research work in the field of crystallography, covers, using a veritable wealth of factual material, such subjects as the historical relations between science and society, the organization of scientific research throughout the world, the place of science in education, and its relation to industry, agriculture and war.

For a valuable critique of Bernal's main thesis by the distinguished Hungarian chemist, M. Polyani, see Chapter 1 (*The Rights and Duties of Science*) of his *Contempt of Freedom* (London, 1940). Polyani's criticism, however, loses a good deal of its force by its repeated assumption of the very point at issue, viz. whether in working out an adequate sociology of science it is valid to regard "science" basically as a body of ideas out of relation to the social application of these ideas.

The Social Relations of Science by J. G. Crowther (London, 1940) should also be mentioned. However, a more accurate title would have been "A Social History of Science" since its chief value lies in its presentation of the history of science in terms of a view of history which takes economic, social and technical facts seriously. *The Scientific Life* by John R. Baker (London, 1940) should be consulted for a useful but in many respects most misleading attempt to disprove the line of argument presented by J. G. Crowther and J. D. Bernal and for a re-statement of the theory that science progresses best if it is allowed to develop along *laissez-faire* lines.

For an excellent bibliography of material in this field see the article *Readings in the Interconnection of Science and Society—A Bibliography* in *Amer. J. Physics*, June, 1942, p. 157.

Perhaps the best introduction to the problem of the social function of the intellectual in modern society is *The Revolt of the Masses* by José Ortega y Gasset (London, 1932). This disturbing book diagnoses the sickness of Western civiliza-

the supreme illustration of "mass-man" (in Chapter 12, *The Barbarism of Specialization*) can be read with equanimity only by those scientists who unconsciously exemplify the author's thesis.

The Treason of the Intellectuals by Julien Benda (New York, 1928) is one of those books which mark an epoch. I have attempted to estimate its importance on pp. 38 ff. above.

The Social Role of the Man of Knowledge by Florian Znaniecki (Oxford, 1941) is a good introduction to the study of the sociology of knowledge (viewed as an empirical study) in terms of a consideration of the function of sages, technologists and inventors in ancient and modern society.

The Academic Man by Logan Wilson (New York, 1942) is a useful account of the sociology of university teaching in the United States, written in terms of the academic hierarchy, status and function. It suffers from its lack of an adequate treatment of the university in its relation to society as whole. Like *The Social Role of the Man of Knowledge* this book needs to be supplemented by the more analytical approach to the problem of the relation between knowledge and society so well exemplified in Karl Mannheim's pioneer work *Ideology and Utopia* (London, 1936).

To all who wish to keep abreast of recent advances in educational theory and practice two year-books are invaluable. The first is the *Educational Yearbook of the International Institute of Teachers College* (Columbia University) and the other is *The Yearbook of Education* published for the Institute of Education in the University of London. Many of the articles in the latter volume have been re-printed in pamphlet form. Of particular importance is *A Review of Educational Thought* by Sir Fred Clarke and others (London, 1936). It is exceptionally useful as a survey of philosophies of education in Great Britain, the United States, and pre-Pétain France. Another valuable reprint is *Educational Traditions in the British Commonwealth of Nations and the United States of America* by Nicholas Hans (London, 1938). It describes the educational traditions of the English-speaking peoples in a series of chapters which approach the question from the Roman Catholic, Anglican, Puritan and secular angles and it has a valuable concluding chapter on *The Resultant Variations of Educational Systems. Education and Social Change* by Sir Fred Clarke (London, 1940) is an epoch-making review of the way in which English education has been historically determined; it furnishes many insights into a similar consideration of the situation in the United States and the British Dominions. *The Aims of Education* (London, 1929) by A. N. Whitehead is a collection of essays which provides any university teacher, who wishes to work out the wider responsibilities of his task, with an excellent introduction to the problems. *A Modern Philosophy of Education* (London, 1929) by Godfrey H. Thomson is a good introductory treatment of the foundations of educational theory. Its author writes from an intimate knowledge—both as parent and professor of education—of the educational systems of England, America and Scotland. *What is Education?* (London, 1942) by M. Reeves and J. Drewett is a brilliant answer to the question expressed in the title. The most important volume on education from a Christian perspective, published within recent years, is, undoubtedly, *Church, Community and State in Relation to Education* (London, 1938) by Sir Fred Clarke and others.

1943) is a brilliant analysis of the educational problem inherent in the present crisis of Western civilization.

For those who wish to study the cleavage in contemporary philosophies of education in the United States *Can Religious Education Be Christian?* by Harrison S. Elliott (New York, 1940) is of particular importance. For a brilliant critique of the point of view expressed by Elliott (or of secular versions of the same philosophy) see *Faith and Nurture* (New York, 1941) by H. Shelton Smith. A comprehensive survey by Harrison S. Elliott of the problems arising from a consideration of the relation between Christianity and Higher Education appears under the title, *Suggested Syllabus on Religion in Higher Education in Religious Education* for January, 1942. It has been reprinted as a pamphlet by the Religious Education Association, 59 East Van Buren St., Chicago.

On the history of university education in medieval times *Universities of Europe in the Middle Ages* by Hastings Rashdall is the classic work. It originally appeared in 1895 but a revised edition in three volumes and edited by F. M. Powicke and A. B. Emden was published in 1936. Rashdall treated the same subject in a less exhaustive fashion in an article in the *Cambridge Medieval History* (Cambridge, 1939), Volume 6, Chapter 17. An excellent brief treatment of the origins of the universities can also be found in *The Rise of the Universities* by C. H. Haskins (New York, 1931). Perhaps the most useful single volume is *The Medieval Universities* by Nathan Schachner (London, 1938).

On the history of university education in the United States the three standard books are *A History of Higher Education in America* by C. F. Thwing (London, 1906), *Foundations of American Colleges and Universities before the Civil War* by Donald Tewksbury (New York, 1932) and *The Growth of American Higher Education* by Elbert V. Wills (Philadelphia, 1936).

Two excellent books on the university in the modern world have been sponsored by the International Student Service. The first, *The University in a Changing World*, edited by Walter Kotschnig and Elined Prys (London, 1932), presents a series of authoritative surveys of the idea of a university in pre-Nazi Germany, France, Great Britain, Soviet Russia and Fascist Italy. The introductory chapter by Kotschnig and a closing chapter by Dietrich von Hildebrand on *The Catholic Conception of a University* are still of undoubted contemporary importance. The second, *The University Outside Europe*, edited by Edward Bradby (London, 1939) is a supplementary volume to *The University in a Changing World* and it consists of descriptive essays on university institutions in the United States, the Near East and the Far East. A. M. Carr-Saunders has an illuminating article, *The Function of Universities in the Modern World*, in the *Sociological Review*, Vol. 32, p. 137 f. (London, 1940).

A useful comparative study of American and European universities can be found in *Universities, American, English and German* by Abraham Flexner (New York, 1930). However, as a serious contribution to the problem of the future of the American university, this book is vitiated by a most romantic estimate of the (pre-Nazi) German university and, still more so, of the English university. It is difficult for an Englishman, who, like the present writer, has been privileged to see at first hand, for example, Yale University, Toronto University and the University of California, to take seriously a book which tells him that the leading British universities are "incomparably superior to anything which has

yet been created in America." A valuable commentary on the American state university and its relation to democracy can be found in *The American State University* by Norman Foerster (Oxford, 1937). A most complete survey of the American college and its place in the system of higher education is given in *The College Charts its Course* by R. Freeman Butts (London, 1939). Parts 1, 2 and 3 discuss the roots of American college education in the classics and the controversy on the insertion of the sciences in the liberal arts curriculum, the impact of the enlightenment and the influence of the German university system respectively. Part 4 deals with current controversy. A matchless bibliography is provided. Of undoubted importance in any discussion of the university in America are two volumes by President R. M. Hutchins: *The Higher Learning in America* (New Haven, 1936) and *No Friendly Voice* (Cambridge 1936). Among the many replies to Hutchins' diagnosis and remedy for the ills which beset the American university, see in particular *The Higher Learning in a Democracy* (New York, 1937) by H. D. Gideonse.

On British universities to-day, two brief but excellent analyses are of first-class importance. *The Universities in Transformation* by Adolph Löwe (London, 1940) gives, in terms of the relativity of educational thought and practice to change in the economic and social order, a penetrating analysis of what is happening in the British universities. *Blind Guides* by David M. Paton (London, 1938) consists of an impressionistic study of life in a British university by an extremely well-informed young English writer, now working among Chinese students. *A Student's View of the Universities* (London, 1943) by Brian Simon and *Red Brick University* (London, 1943) by Bruce Truscot each present, from the standpoint of a student and a professor respectively, many shrewd insights into what is now happening in the British university world. However, they both put more faith in the reform of the mechanics of administration and teaching than the plight of the present university world appears to justify. Judging from the rest of his work (war conditions have prevented me obtaining a copy of his book), F. R. Leavis' *Education and the University* (London, 1943) should not be missed. For a piece of pioneer work on the sociology of education as a whole, *Education in Transition* (London, 1943) by H. C. Dent should be closely consulted.

Any attempt to understand the Nazi university will be doomed to failure unless it is preceded by a recognition of all the factors that led to Hitler's régime. The best survey of this question is *Why Hitler Came to Power* (New York, 1938) by Theodore Abel. This scholarly analysis of the life histories of six hundred Nazis deserves a title rather more commensurate with its importance to serious students of the subject. See also the article *The Nazi Party: Its Leadership and Composition* by Hans Gerth in the *American Journal of Sociology*, January, 1941.

Among the more serious books which seek to give a synoptic picture of Nazi Germany, *The Nazi State* by William Ebenstein (New York, 1943) should be singled out. This book needs to be supplemented by *The War against the West* by Aurel Kolnai (London, 1938) which gives a most exhaustive account of the Nazi challenge to the spiritual, intellectual, political and social foundations of Western civilization. The author's insight is evident when one reads "the central idea of an 'understanding' with Nazi Germany is fundamentally futile

very ideas of understanding, equal dignity, legal order, and a common rational medium of humanity. The greatest danger for the West is to lull itself into a sense of security by gestures of complacency, renunciation or friendship, which at best can never be more than a technical truce"¹ and then remembers that the book was written before Hitler's entry into Austria.

For the best brief and yet well-documented description of the Nazi and Fascist attack on education throughout occupied Europe see Chapter 2 of *Slaves Need No Leaders* (New York, 1943) by Walter M. Kotschnig. See also *Comparative Education* (Bloomington, Ill., 1941), pp. 139-250, for a good factual description of Nazi and Fascist education. The most exhaustive survey yet published of the Nazi educational system as a whole is *The Educational Philosophy of National Socialism* by G. F. Kneller (Oxford, 1941). See in particular the section *Irrationalism and the University*, pp. 219-29. *Education in Germany* by Alina M. Lindegren (U.S. Office of Education, Washington, 1938) should also be consulted. (See in particular Chapters 5, 6, 7.) Among the many articles that have been published within recent years on education in Nazi Germany the following are perhaps the most important: *Psychological and Other Aspects of Recent Tendencies in German Education* by Adam Thorburn in the *British Journal of Educational Psychology*, Vol. 5, pp. 117-36 (1935), *German Education in 1936* by Lancelot Forster in *The Nineteenth Century*, Vol. 122, pp. 447-61 (an excellent discussion of the place of the teacher in the Third Reich), and those in the *Journal of Educational Sociology* for November, 1939 (Vol. 13, No. 3, New York).

The German Universities and National Socialism (Cambridge, Mass., 1937) by E. Y. Hartshorne gives an excellent first-hand account of the impact of the Nazi movement on the life and thought of the German universities up to the end of 1936. Its bibliography is particularly of value.

These indispensable but impersonal accounts should be supplemented by the consultation of less academic but more sensational descriptions of the Nazi educational system. The most recent is *Education for Death* (London, 1941) by Gregor Ziemer, who, until well after the present war broke out was Director of the School for American Children in Berlin, in which capacity he had a first-class opportunity to see the nightmare resulting from the Nazi attempt to fulfil Hitler's prophecy of some years ago: "I shall eradicate the thousands of years of human domestication. I want to see again in the eyes of youth the gleam of the beasts of prey. A youth will grow up before which the world will shrink." *School for Barbarians* (London, 1939) by Erika Mann, and *What Hitler Did to Us* (London, 1938) by Eva Lips give a vivid account of scholarship and learning in Nazi Germany, which, being written in terms of a personal record, are far more revealing than many more theoretical descriptions of the Nazi *Gleichschaltung*.

As illustrations of Nazi thought exemplified in particular subjects, *German Literature through Nazi Eyes* (London, 1941) by H. G. Atkins is a revealing and well-documented study of the Nazi re-valuation of German literature, past and present, while R. J. Baker gives an illuminating study of Nazi thinking in the sphere of the social sciences in an article in *Sociological Review* (London) for January, 1939, Vol. 31, pp 85 f. Of particular interest is the volume *A New Social Philosophy* (Oxford, 1937) by Werner Sombart (English translation by

Karl F. Geiser of *Deutscher Sozialismus*). Every university teacher should read this book if he seeks to understand the mental processes of an eminent scholar who could make his peace with Nazi thought and yet not echo completely its incredible absurdities. See also the same author's shorter volume: *Weltanschauung, Science and Economy* (New York, 1939).

Of authoritative Nazi expositions of their philosophy of education there is no lack. Dr. Frick, the Nazi Minister of the Interior, has issued an authoritative circular on the guiding ideas (*Leitgedanken*) for the teaching of history. Its official reference number is 3.3120-22.6 and the document is published (in translation) in *Nature* (London), pp. 298 f., Vol. 133. *National Socialism and Science* is a speech by the Reich Minister for Education, Rust, and it is published in *The University Review*, Vol. 9 (November, 1936), pp. 39-42 (translation by H. N. Gaitskell). See also the articles: *Educational Ideals of the German National Socialist Movement* by Ministerialrat Dr. Joachim Haupt in *The Yearbook of Education* (London, 1935), *The Conditions and Content of the New Order of German Education* by P. Gerhard Gräfe, Director of the German Academic Exchange Service, Berlin, in *The Yearbook of Education* (London, 1939), and *German Higher Education and National Socialism* by Wilhelm Reitz in *Journal of Higher Education* (Columbus, Ohio, 1934), Vol. 5, pp. 407-13.

It is revealing to compare any of the expositions of Nazi educational theory mentioned above with two similar articles which outline the pre-Hitler German approach to education. They are *Education in Germany* by Frau Ministerialrat Gertrud Bäumer in *The Yearbook of Education* (London, 1932), pp. 839 ff. and *Germany* by Robert Ulrich in *The International Yearbook of Education* (New York, 1936), pp. 339-61.

Any study of education in Fascist Italy should begin with a consideration of Italian Fascism as a whole, conceived as a comprehensive philosophy of man, the state and the universe. Perhaps the best treatment of the subject is *Goliath, the March of Fascism* (London, 1938) by G. A. Borgese. *Contemporary Thought of Italy* (London, 1926) by A. Crespi also provides some excellent background material.

On Fascist education itself, *Making Fascists* (Chicago, 1939) by H. W. Schneider and S. B. Clough is excellent for earlier developments. For a good account, written from a Fascist perspective, of the philosophy underlying the Fascist educational system see the article by E. Codignola in *The International Yearbook* (Columbia University, 1929), pp. 319-425. For a later treatment see *New Education in Italy* (New York, 1936) by S. F. Vanni. *The Universities of Italy* by "The Fascist University Group" (Bergamo, Istituto Italiano d'Arti Grafiche, 1934) is an elaborately produced and profusely illustrated "factual" review of the universities of Italy. However, as a source of insight into the Fascist universities, its value is in inverse proportion to its size and splendour.

It is impossible to understand the Soviet educational system, and especially Soviet universities, except in the light of the place which science plays in the thought and culture of the U.S.S.R. As background material for such a study and among the many books that seek to describe the Soviet Union, *Soviet Labour and Industry* (London, 1942) by L. E. Hubbard should be mentioned. The book is recent and covers a much wider field than the title indicates. The author, who has travelled extensively and on many occasions in the Soviet

Union, gives considerable space to a description of the institutions for higher education and the place of science in industry.

Among more detailed treatments of science in the Soviet Union the following should be mentioned:

Scientist among the Soviets (New York and London, 1932) by Julian Huxley is an interesting collection of newspaper and magazine articles, describing the author's experience (he was Secretary of the Zoological Society of London) during a tour of the Soviet Union in 1931. It gives little attention to the more theoretical aspects of the problem of Marxist institutions of learning.

Soviet Science (London, 1936) by J. G. Crowther is a valuable though somewhat uncritical description of organizations and institutions for research in the natural sciences in the Soviet Union. The author attempts to indicate the underlying Marxist philosophy of science in a chapter on dialectical materialism and another on the history of science. Unfortunately they are too hurriedly written to be really valuable.

Science in Soviet Russia (London, 1942), edited by Joseph Needham and Jane S. Davies, is a recent collection of short essays describing the state of research in physics, biology and agriculture in the U.S.S.R.

Undoubtedly the most exhaustive account in English of the freedom of artistic expression and scientific inquiry in Russia which we have is an article with that title by Phillip E. Mosely in *The Annals of the American Academy of Political and Social Science* (Philadelphia, 1938), Vol. 200, pp. 254 ff.

As background material for a study of Soviet education *Youth in Soviet Russia* (London, 1933) by Klaus Mehnert is an informing account of all phases of the influence of Communism on the youth of the U.S.S.R. Generally speaking, its author, a young German, is critical of but sympathetic to the Soviet régime. The book contains an interesting description of the life, hostels and recreations of Soviet students in the institutions of higher learning.

On education proper in the U.S.S.R. the following are important:

Soviet Education: Some Aspects of Cultural Revolution (London, 1932) by R. D. Charques is the best brief account of the Soviet educational system. Its facts are naturally now out-of-date but its analysis of the principles behind the system remains as valid as ever.

Changing Man: The Educational System of the U.S.S.R. (New York and London, 1931) by Beatrice King is perhaps the most useful introduction to Soviet education. However, it is written from a liberal rationalist standpoint which seems quite unaware of the Marxist rejection of its basic presuppositions. Its author is an English observer with an intimate knowledge of the Soviet Union and the Russian language. (See, in particular, Chapter 3, *The Principles of Communist Education*, Chapter 14, *Higher Education*, and Chapter 15, *The Teaching Profession*.)

Educational Policy in the Soviet Union (London, 1930) by N. Hans and S. Hessen is a valuable book, written by two Russian democrats, who left the U.S.S.R. after some years of experience under the Soviet system; Nicholas Hans had been Director of Education for the city of Odessa. The book has a good bibliography in both English and Russian. Chapter 12, *Universities and other Higher Institutions*, is of particular value. The situation in the Soviet Union has changed considerably since the book was written but Hans has kept up to date his contribution to the subject.

of Education (London). In *Education in Soviet Russia* (pp. 745 ff., 1933) he takes his exposition to the end of the First Five Year Plan and in an article under the same title in *The Yearbook* for 1935 (pp. 931 ff.) he describes the radical re-organisation of curricula and methods adopted in the period 1931-1934. See also *The Yearbook* for 1937 (pp. 783 ff.) for an illuminating article from the orthodox Communist Party standpoint, *Education in the U.S.S.R.*, by M. Epstein, the Director of the Department of Social Education, Commissariat of Public Instruction, Moscow. It provides some painful illustrations of the lengths to which personal adulation of Stalin has gone. For a more lengthy treatment from this perspective see *Science and Education in the U.S.S.R.* (London, 1935) by A. Pinkevich. This book is somewhat colourless but, in view of the position of the author (he is Director of the Research Institute of Scientific Pedagogy, Moscow), it is important as a description of the different phases of Soviet education from pre-school institutions for children and mothers to the university and adult education. The treatment of science is cursory and restricted to one chapter, which is unrelated to the rest of the book. The acceptance of dialectical materialism is explicitly stated but its implicit relation to the factual parts of the book is not worked out. Pinkevich's earlier volume, *The New Education in the Soviet Republic* (London, 1930), should also be consulted by those readers who wish to notice the evolution of Soviet educational policy.

Two useful articles, under the title *Education in the U.S.S.R.*, by J. P. MacColum appear in the *Journal for Education* for September and October (London), 1940 (Vol. 72, pp. 430 and 456). They give a brief statistical description of Soviet education. (N.B. in the following issue, Beatrice King has contributed an informing letter in which she claims to have brought MacColum's facts and figures up to date.) Another valuable article of general importance is *Education in the U.S.S.R.* by Johanson I. Zilberfarv. It appears in *The Educational Yearbook* for 1937 (pp. 476 f.). The most recent accounts of Soviet education appear in *Comparative Education* (pp. 251-311) by Henry L. Smith and in *Children in Soviet Russia* by Deana Levin (Toronto, 1942).

There is little material available in English on the Soviet university. There is, however, a very full article *Higher Education in Soviet Russia and the New Student* by Nucia L. Lodge in the *Educational Yearbook* for 1934, pp. 291-411.

A most revealing article entitled *The Teaching of History under Stalin* by Paul Olberg appears in the *Contemporary Review* (London, 1937), Volume 155, pp. 464-9. It consists of an illuminating review of the *School History of the Soviet Union*, a standard textbook for use in the elementary schools of the Soviet Union.

Various references have been given in Chapter VII to books which seek to interpret a particular body of knowledge in terms of Christian presupposition and to relate such a body of knowledge to a Christian world view. Among other books, however, which should be explicitly mentioned is *Christian Discrimination* (London, 1940) by George Every. This book is an important and all too brief pioneer account of the relevance of Christianity to æsthetic judgments in literature, music, art, furniture, etc. In the field of literature, *Man and Literature* (London, 1943) by Norman Nicholson and the *Literary Outlook* (London, 1945) by S. I. Bethell, are of undoubted importance. In the field of

and *Art and Religion* (London, 1924) by Percy Dearmer present classical studies of their subject material. *Religion and Dramatic Art* (London, 1927) by Spencer H. Elliott gives many suggestive ideas on the field covered by the title. For a learned collection of essays based upon an explicit Christian philosophy of law see *The Judicial Office and Other Matters* (London, 1943) by Sir Henry Slessor.

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